

Series 1600

NEW
ITEMS.0787" - .3750"
(2.000mm - 9.525mm)TECH
PAGES
318-321

TOLERANCES

d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	$+ .125" - .062" (+3.175 - 1.588mm)$
	$> 1/8"$	$+ .125" - .125" (+3.175 - 3.175mm)$
l_2	$\leq 1/8"$	$+ .125" - .062" (+3.175 - 1.588mm)$
	$> 1/8"$	$+ .125" - .125" (+3.175 - 3.175mm)$

N/C Spotting

Solid submicron grain carbide drill

For spotting to stabilize long drills

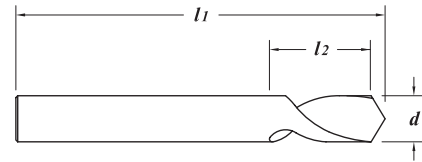
Can be used for chamfering

Rough, angled or spherical surfaces

No O.D. clearance

For locating on true position

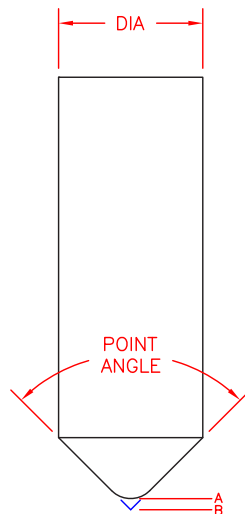
Live tooling recommended on lathe processes



82° EDP#	90° EDP#	120° EDP#	140° EDP#	$d^{\dagger}$ Diameter			l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
				Decimal		Metric						
91650	91500	91572	91240	.0787		2.000	50	10	10.29	9.85	9.40	8.95
91652	91505	91575	91245	.0938	3/32"	2.383	2"	3/8"	11.66	11.15	10.65	10.14
-	91507	-	-	.1181		3.000	38	6	12.87	12.31	11.75	11.19
-	91510	91580	91250	.1181		3.000	50	10	13.74	13.15	12.55	11.95
-	91512	-	-	.1181		3.000	75	10	15.94	15.25	14.55	13.86
-	91514	-	-	.1250	1/8"	3.175	1-1/2"	1/4"	12.87	12.31	11.75	11.19
91656	91000	91100	91260	.1250	1/8"	3.175	2"	3/8"	13.74	13.15	12.55	11.95
-	91002	-	-	.1250	1/8"	3.175	3"	3/8"	15.94	15.25	14.55	13.86
91658	91520	91590	91270	.1575		4.000	50	12	15.87	15.18	14.49	13.80
-	91522	-	-	.1875	3/16"	4.763	2"	3/8"	15.87	15.18	14.49	13.80
-	91524	-	-	.1875	3/16"	4.763	2-1/2"	1/2"	16.43	15.72	15.00	14.29
91660	91010	91110	91280	.1875	3/16"	4.763	3"	3/4"	17.97	17.19	16.41	15.63
-	91012	-	-	.1875	3/16"	4.763	4"	3/4"	21.02	20.11	19.19	18.28
-	91014	-	-	.1969		5.000	50	10	17.26	16.51	15.76	15.01
-	91530	91600	91290	.1969		5.000	65	15	18.88	18.06	17.24	16.42
-	91532	-	-	.1969		5.000	75	15	20.34	19.46	18.57	17.69
-	91534	-	-	.2362		6.000	50	12	19.40	18.56	17.71	16.87
91664	91540	91610	91300	.2362		6.000	65	20	19.85	18.99	18.12	17.26
-	91542	-	-	.2362		6.000	75	20	21.33	20.41	19.48	18.55
-	91544	-	-	.2362		6.000	100	20	24.91	23.83	22.74	21.66
-	91546	-	-	.2500	1/4"	6.350	2"	1/2"	19.40	18.56	17.71	16.87
-	91547	-	-	.2500	1/4"	6.350	2-1/2"	5/8"	19.85	18.99	18.12	17.26
91666	91020	91120	91310	.2500	1/4"	6.350	3"	3/4"	21.33	20.41	19.48	18.55
-	91021	-	-	.2500	1/4"	6.350	4"	3/4"	24.91	23.83	22.74	21.66
-	91022	-	-	.2500	1/4"	6.350	6"	3/4"	36.86	35.26	33.65	32.05
-	91023	-	-	.3125	5/16"	7.938	2"	1/2"	23.51	22.48	21.46	20.44
-	91024	-	-	.3125	5/16"	7.938	2-1/2"	5/8"	24.08	23.03	21.99	20.94
91668	91025	91125	91315	.3125	5/16"	7.938	3"	1"	25.81	24.68	23.56	22.44
-	91026	-	-	.3125	5/16"	7.938	4"	1"	30.73	29.39	28.06	26.72
-	91548	-	-	.3150		8.000	50	12	23.51	22.48	21.46	20.44
-	91549	-	-	.3150		8.000	65	16	24.08	23.03	21.99	20.94
91670	91550	91620	91320	.3150		8.000	75	25	25.81	24.68	23.56	22.44
-	91551	-	-	.3150		8.000	100	25	30.73	29.39	28.06	26.72
-	91028	-	-	.3750	3/8"	9.525	2"	1/2"	25.15	24.06	22.96	21.87
-	91029	-	-	.3750	3/8"	9.525	2-1/2"	5/8"	26.07	24.94	23.80	22.67
91672	91030	91130	91330	.3750	3/8"	9.525	3"	1"	27.99	26.77	25.56	24.34
-	91031	-	-	.3750	3/8"	9.525	4"	1"	34.27	32.78	31.29	29.80
-	91032	-	-	.3750	3/8"	9.525	6"	1"	49.86	47.70	45.53	43.36

82° EDP#	90° EDP#	120° EDP#	140° EDP#	d^+ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
				Decimal	Metric						
-	91558	-	-	.3937	10.000	65	16	33.32	31.87	30.42	28.97
-	91559	-	-	.3937	10.000	70	20	34.20	32.71	31.23	29.74
-	91560	91630	91340	.3937	10.000	88	25	38.62	36.94	35.26	33.58
-	91561	-	-	.3937	10.000	100	25	41.95	40.13	38.30	36.48
-	91564	-	-	.4375	7/16"	11.113	2-3/4"	36.96	35.35	33.75	32.14
91676	91565	91635	91345	.4375	7/16"	11.113	4"	43.11	41.24	39.36	37.49
-	91568	-	-	.4724	12.000	65	16	39.38	37.66	35.95	34.24
-	91569	-	-	.4724	12.000	75	20	40.08	38.34	36.59	34.85
-	91570	91640	91350	.4724	12.000	100	30	46.41	44.40	42.38	40.36
-	91038	-	-	.5000	1/2"	12.700	2-1/2"	40.63	38.86	37.10	35.33
-	91039	-	-	.5000	1/2"	12.700	3"	41.23	39.44	37.64	35.85
91680	91040	91140	91360	.5000	1/2"	12.700	4"	48.27	46.17	44.07	41.97
-	91041	-	-	.5000	1/2"	12.700	6"	72.94	69.77	66.60	63.43
-	91050	91170	91370	.5512	14.000	100	30	83.18	79.56	75.95	72.33
91684	91060	91180	-	.5625	9/16"	14.287	4"	90.70	86.76	82.81	78.87
-	91067	-	-	.6250	5/8"	15.875	3"	86.68	82.91	79.14	75.37
-	91068	-	-	.6250	5/8"	15.875	3-1/2"	87.27	83.48	79.68	75.89
-	91069	-	-	.6250	5/8"	15.875	4"	96.15	91.97	87.79	83.61
91686	91070	91190	91390	.6250	5/8"	15.875	5"	111.29	106.45	101.61	96.77
NEW	91077	-	-	.6299	16.000	75	20	89.48	85.59	81.70	77.81
-	91078	-	-	.6299	16.000	88	25	90.14	86.22	82.30	78.38
NEW	91079	-	-	.6299	16.000	100	25	98.24	93.97	89.70	85.43
91688	91080	91200	91400	.6299	16.000	125	30	114.26	109.30	104.33	99.36
91690	91090	91210	-	.7087	18.000	125	30	156.75	149.93	143.12	136.30
-	91148	-	-	.7500	3/4"	19.050	3"	131.42	125.71	119.99	114.28
-	91149	-	-	.7500	3/4"	19.050	4"	136.06	130.14	124.23	118.31
91692	91150	91220	91420	.7500	3/4"	19.050	5"	161.00	154.00	147.00	140.00
NEW	91159	-	-	.7874	20.000	100	25	152.02	145.41	138.80	132.19
-	91160	91230	91430	.7874	20.000	125	30	174.32	166.74	159.16	151.58
NEW	91161	-	-	.7874	20.000	150	30	192.49	184.12	175.75	167.38

DIAMETER	DRILL POINT ANGLE			
	82°	90°	120°	140°
2mm	.0787	.003	.002	.001
3/32"	.0938	.003	.003	.002
3mm	.1181	.004	.004	.002
1/8"	.1250	.004	.004	.002
4mm	.1575	.005	.005	.003
3/16"	.1875	.006	.006	.003
5mm	.1969	.007	.006	.003
6mm	.2362	.008	.007	.004
1/4"	.2500	.009	.008	.004
5/16"	.3125	.011	.009	.005
8mm	.3150	.011	.009	.005
3/8"	.3750	.013	.011	.006
10mm	.3937	.014	.012	.007
7/16"	.4375	.015	.013	.008
12mm	.4724	.016	.014	.008
1/2"	.5000	.017	.015	.009
14mm	.5512	.019	.017	.010
9/16"	.5625	.019	.017	.010
5/8"	.6250	.022	.019	.011
16mm	.6299	.022	.019	.011
18mm	.7087	.024	.021	.012
3/4"	.7500	.026	.023	.013
20mm	.7874	.027	.024	.014



Garr Tool series 1600 spotting drills are not only useful for starting holes, but also for leaving the desired chamfer when programmed to the correct depth. Because spotting drills do not come to a true point, but have a small "flat" as shown in the figure to the left, the length deviation from the chart must be taken into account to leave the correct chamfer length. This chart gives the distance from the theoretical drill point 'B' to the actual drill point 'A'. These values can be used to compensate for the "flat" on our spotting drills in your calculations.

Series 1400



TOLERANCES

d_1	$+0.003" - .000" (+.0762 - .0000\text{mm})$
d_2	$h6$
l_1	$+0.125" - .125" (+3.175 - 3.175\text{mm})$
l_2	$+0.008" - .008" (+.203 - .203\text{mm})$

Combined Drill and Countersink

Solid submicron grain carbide drill

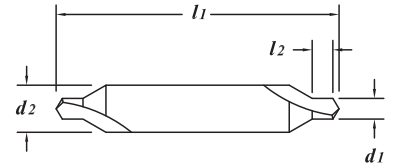
For center drilling applications

$60^\circ \pm 0^\circ 30'$ included countersink angle

Live tooling recommended on lathe processes

Drill length (l_2) is equal to drill diameter (d_1)

Not able to be altered



EDP #	Number	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Drill Length	1-11	12-24	25-49	50-100	
		Decimal	Metric								
58030	1	.0469	3/64"	1.191	1/8"	1-1/2"	.0469	15.42	14.75	14.08	13.41
58040	2	.0781	5/64"	1.984	3/16"	2"	.0781	24.28	23.22	22.17	21.11
58050	3	.1094	7/64"	2.779	1/4"	2"	.1094	27.65	26.44	25.24	24.04
58060	4	.1250	1/8"	3.175	5/16"	2-1/8"	.1250	38.70	37.02	35.33	33.65
58070	5	.1875	3/16"	4.763	7/16"	2-3/4"	.1875	55.28	52.88	50.47	48.07
58080	6	.2188	7/32"	5.558	1/2"	3"	.2188	73.59	70.39	67.19	63.99



Tool prep, Coating inspection

TOLERANCES

d	+.0000" -.0005" (+.0000 -.0127mm)	
l1	≤ 1/8"	+.125" -.062" (+3.175 -1.588mm)
	> 1/8"	+.125" -.125" (+3.175 -3.175mm)
l2	≤ 1/8"	+.125" -.062" (+3.175 -1.588mm)
	> 1/8"	+.125" -.125" (+3.175 -3.175mm)


Series 1500

.0625" - .1660"
(1.588mm - 4.216mm)

Recommended for high nickel, cobalt-based, and powdered metals

Hard Metal

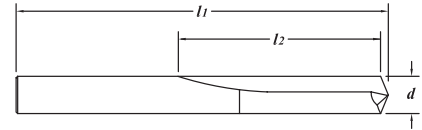
Solid submicron grain carbide drill

Straight flute design provides excellent rigidity

Materials 40 Rc and higher

Live tooling recommended on lathe processes

Hardlube Coating - page 59



EDP#	d [†] Diameter		l1 Overall Length	l2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
59165	.0625	1/16"	1.588	1-3/4"	5/8"	10.60	10.14	9.68
59180	.0700	#50	1.778	1-3/4"	3/4"	10.60	10.14	9.68
59185	.0730	#49	1.854	1-3/4"	3/4"	10.60	10.14	9.68
59190	.0760	#48	1.930	1-3/4"	3/4"	10.60	10.14	9.68
59195	.0781	5/64"	1.984	1-3/4"	3/4"	10.60	10.14	9.68
59200	.0785	#47	1.994	1-3/4"	7/8"	10.60	10.14	9.68
39000	.0787		2.000	50	22	10.60	10.14	9.68
59210	.0810	#46	2.057	2"	7/8"	10.60	10.14	9.68
59215	.0820	#45	2.083	2"	7/8"	10.60	10.14	9.68
59220	.0860	#44	2.184	2"	7/8"	10.60	10.14	9.68
59225	.0890	#43	2.261	2"	7/8"	10.60	10.14	9.68
59230	.0935	#42	2.375	2"	7/8"	10.60	10.14	9.68
59235	.0938	3/32"	2.383	2"	7/8"	10.60	10.14	9.68
59240	.0960	#41	2.438	2"	7/8"	12.09	11.56	11.04
59245	.0980	#40	2.489	2"	7/8"	12.09	11.56	11.04
39050	.0984		2.500	50	22	12.09	11.56	11.04
59255	.0995	#39	2.527	2"	7/8"	12.09	11.56	11.04
59260	.1015	#38	2.578	2"	7/8"	12.09	11.56	11.04
59265	.1040	#37	2.642	2"	7/8"	12.09	11.56	11.04
59270	.1065	#36	2.705	2"	7/8"	12.09	11.56	11.04
59275	.1094	7/64"	2.779	2"	1"	12.09	11.56	11.04
59280	.1100	#35	2.794	2"	1"	12.57	12.02	11.48
59285	.1110	#34	2.819	2"	1"	12.57	12.02	11.48
59290	.1130	#33	2.870	2"	1"	12.57	12.02	11.48
59295	.1160	#32	2.946	2"	1"	12.57	12.02	11.48
39100	.1181		3.000	50	25	12.57	12.02	11.48
59305	.1200	#31	3.048	2"	1"	12.57	12.02	11.48
59310	.1250	1/8"	3.175	2"	1"	11.59	11.09	10.58
59315	.1285	#30	3.264	2"	1"	13.67	13.08	12.48
59320	.1360	#29	3.454	2"	1"	13.67	13.08	12.48
39150	.1378		3.500	50	25	13.67	13.08	12.48
59330	.1405	#28	3.569	2"	1"	13.67	13.08	12.48
59335	.1406	9/64"	3.571	2"	1"	13.67	13.08	12.48
59340	.1440	#27	3.658	2"	1"	14.04	13.43	12.82
59345	.1470	#26	3.734	2"	1"	14.75	14.11	13.47
59350	.1495	#25	3.797	2"	1"	14.75	14.11	13.47
59355	.1520	#24	3.861	2"	1"	14.75	14.11	13.47
59360	.1540	#23	3.912	2"	1"	14.75	14.11	13.47
59365	.1562	5/32"	3.967	2-1/2"	1-1/8"	14.75	14.11	13.47
59370	.1570	#22	3.988	2-1/2"	1-1/8"	15.99	15.29	14.60
39200	.1575		4.000	63	28	15.99	15.29	14.60
59380	.1590	#21	4.039	2-1/2"	1-1/8"	16.36	15.65	14.94
59385	.1610	#20	4.089	2-1/2"	1-1/8"	16.36	15.65	14.94
59390	.1660	#19	4.216	2-1/2"	1-1/8"	16.97	16.24	15.50

continued →

Series 1500 (continued)

.1695" - .5000"
(4.305mm - 12.700mm)

EDP#	$d^{\dagger}$ Diameter		Overall Length	l_1 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
59395	.1695	#18	4.305	2-1/2"	1-3/16"	16.97	16.24	15.50
59400	.1719	11/64"	4.366	2-1/2"	1-3/16"	16.97	16.24	15.50
59405	.1730	#17	4.394	2-1/2"	1-3/16"	17.34	16.59	15.83
59410	.1770	#16	4.496	2-1/2"	1-3/16"	17.34	16.59	15.83
39250	.1772		4.500	63	28	17.34	16.59	15.83
59420	.1800	#15	4.572	2-1/2"	1-3/16"	17.34	16.59	15.83
59425	.1820	#14	4.623	2-1/2"	1-3/16"	18.31	17.51	16.72
59430	.1850	#13	4.700	2-1/2"	1-3/16"	18.31	17.51	16.72
59435	.1875	3/16"	4.763	2-1/2"	1-3/16"	17.60	16.83	16.07
59440	.1890	#12	4.801	2-1/2"	1-3/16"	18.18	17.39	16.60
59445	.1910	#11	4.851	2-1/2"	1-3/16"	18.18	17.39	16.60
59450	.1935	#10	4.915	2-1/2"	1-1/4"	19.26	18.43	17.59
59455	.1960	#9	4.978	2-1/2"	1-1/4"	19.26	18.43	17.59
39300	.1969		5.000	63	32	19.26	18.43	17.59
59465	.1990	#8	5.055	2-1/2"	1-1/4"	19.91	19.04	18.18
59470	.2010	#7	5.105	2-1/2"	1-1/4"	19.91	19.04	18.18
59475	.2031	13/64"	5.159	2-1/2"	1-1/4"	19.91	19.04	18.18
59480	.2040	#6	5.182	2-1/2"	1-1/4"	21.00	20.09	19.17
59485	.2055	#5	5.220	2-1/2"	1-1/4"	21.00	20.09	19.17
59490	.2090	#4	5.309	2-1/2"	1-1/4"	21.00	20.09	19.17
59495	.2130	#3	5.410	2-1/2"	1-1/4"	21.00	20.09	19.17
39350	.2165		5.500	63	32	21.00	20.09	19.17
59505	.2188	7/32"	5.558	2-1/2"	1-1/2"	21.00	20.09	19.17
59510	.2210	#2	5.613	2-1/2"	1-1/2"	22.46	21.48	20.51
59515	.2280	#1	5.791	2-1/2"	1-1/2"	22.46	21.48	20.51
59525	.2344	15/64"	5.954	2-1/2"	1-1/2"	25.04	23.95	22.86
39400	.2362		6.000	63	38	25.04	23.95	22.86
59550	.2500	1/4"	6.350	2-1/2"	1-1/2"	23.58	22.55	21.53
59570	.2656	17/64"	6.746	2-1/2"	1-1/2"	28.58	27.34	26.09
39500	.2756		7.000	63	38	29.29	28.02	26.74
59600	.2812	9/32"	7.142	2-1/2"	1-1/2"	29.29	28.02	26.74
39520	.2953		7.500	63	41	30.77	29.44	28.10
59620	.2969	19/64"	7.541	2-1/2"	1-5/8"	30.77	29.44	28.10
59630	.3125	5/16"	7.938	2-1/2"	1-5/8"	30.77	29.44	28.10
39540	.3150		8.000	63	41	32.36	30.95	29.55
59650	.3281	21/64"	8.334	3"	1-5/8"	33.32	31.87	30.42
39560	.3346		8.500	76	41	37.21	35.60	33.98
59670	.3438	11/32"	8.733	3"	1-5/8"	37.21	35.60	33.98
39580	.3543		9.000	76	41	40.41	38.65	36.90
59690	.3594	23/64"	9.129	3"	1-3/4"	40.41	38.65	36.90
59705	.3750	3/8"	9.525	3"	1-3/4"	44.06	42.14	40.23
59720	.3906	25/64"	9.921	3"	1-3/4"	49.80	47.63	45.47
39620	.3937		10.000	76	44	49.80	47.63	45.47
59740	.4062	13/32"	10.317	3"	1-3/4"	55.65	53.23	50.81
39640	.4134		10.500	76	44	58.24	55.70	53.17
59755	.4219	27/64"	10.716	3"	1-3/4"	61.27	58.61	55.94
39660	.4331		11.000	76	44	62.38	59.66	56.95
59765	.4375	7/16"	11.113	3"	1-3/4"	62.38	59.66	56.95
59775	.4531	29/64"	11.509	3"	1-3/4"	65.40	62.56	59.71
59780	.4688	15/32"	11.908	3"	1-3/4"	65.40	62.56	59.71
39700	.4724		12.000	76	44	65.40	62.56	59.71
59790	.4844	31/64"	12.304	3"	1-3/4"	65.40	62.56	59.71
39720	.4921		12.500	76	44	66.88	63.98	61.07
59800	.5000	1/2"	12.700	3"	1-3/4"	66.88	63.98	61.07

TOLERANCES

d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)
l_2	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)


Series 1500H

 .0625" - .1660"
(1.588mm - 4.216mm)

Recommended for high nickel, cobalt-based, and powdered metals

Hard Metal
Hardlube Coating

Solid submicron grain carbide drill

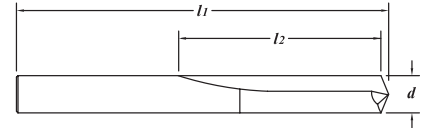
Straight flute design provides excellent rigidity

Materials 40 Rc and higher

Excellent heat resistance and lubricity

Live tooling recommended on lathe processes

Uncoated - page 57



EDP#	d [†]		l_1	l_2	1-11	12-24	25-49	50-100
	Decimal	Diameter Metric						
59166	.0625	1/16"	1.588	1-3/4"	5/8"	12.74	12.19	11.63
59181	.0700	#50	1.778	1-3/4"	3/4"	12.74	12.19	11.63
59186	.0730	#49	1.854	1-3/4"	3/4"	12.74	12.19	11.63
59191	.0760	#48	1.930	1-3/4"	3/4"	12.74	12.19	11.63
59196	.0781	5/64"	1.984	1-3/4"	3/4"	12.74	12.19	11.63
59201	.0785	#47	1.994	1-3/4"	7/8"	12.74	12.19	11.63
39001	.0787		2.000	50	22	12.74	12.19	11.63
59211	.0810	#46	2.057	2"	7/8"	12.74	12.19	11.63
59216	.0820	#45	2.083	2"	7/8"	12.74	12.19	11.63
59221	.0860	#44	2.184	2"	7/8"	12.74	12.19	11.63
59226	.0890	#43	2.261	2"	7/8"	12.74	12.19	11.63
59231	.0935	#42	2.375	2"	7/8"	12.74	12.19	11.63
59236	.0938	3/32"	2.383	2"	7/8"	12.74	12.19	11.63
59241	.0960	#41	2.438	2"	7/8"	14.17	13.55	12.94
59246	.0980	#40	2.489	2"	7/8"	14.17	13.55	12.94
39051	.0984		2.500	50	22	14.17	13.55	12.94
59256	.0995	#39	2.527	2"	7/8"	14.17	13.55	12.94
59261	.1015	#38	2.578	2"	7/8"	14.17	13.55	12.94
59266	.1040	#37	2.642	2"	7/8"	14.17	13.55	12.94
59271	.1065	#36	2.705	2"	7/8"	14.17	13.55	12.94
59276	.1094	7/64"	2.779	2"	1"	14.17	13.55	12.94
59281	.1100	#35	2.794	2"	1"	14.70	14.06	13.42
59286	.1110	#34	2.819	2"	1"	14.70	14.06	13.42
59291	.1130	#33	2.870	2"	1"	14.70	14.06	13.42
59296	.1160	#32	2.946	2"	1"	14.70	14.06	13.42
39101	.1181		3.000	50	25	14.70	14.06	13.42
59306	.1200	#31	3.048	2"	1"	14.70	14.06	13.42
59311	.1250	1/8"	3.175	2"	1"	13.70	13.10	12.51
59316	.1285	#30	3.264	2"	1"	15.78	15.09	14.41
59321	.1360	#29	3.454	2"	1"	15.78	15.09	14.41
39151	.1378		3.500	50	25	15.78	15.09	14.41
59331	.1405	#28	3.569	2"	1"	15.78	15.09	14.41
59336	.1406	9/64"	3.571	2"	1"	15.78	15.09	14.41
59341	.1440	#27	3.658	2"	1"	16.13	15.43	14.73
59346	.1470	#26	3.734	2"	1"	16.87	16.14	15.40
59351	.1495	#25	3.797	2"	1"	16.87	16.14	15.40
59356	.1520	#24	3.861	2"	1"	16.87	16.14	15.40
59361	.1540	#23	3.912	2"	1"	16.87	16.14	15.40
59366	.1562	5/32"	3.967	2-1/2"	1-1/8"	16.87	16.14	15.40
59371	.1570	#22	3.988	2-1/2"	1-1/8"	18.08	17.29	16.51
39201	.1575		4.000	63	28	18.08	17.29	16.51
59381	.1590	#21	4.039	2-1/2"	1-1/8"	18.47	17.67	16.86
59386	.1610	#20	4.089	2-1/2"	1-1/8"	18.47	17.67	16.86
59391	.1660	#19	4.216	2-1/2"	1-1/8"	19.08	18.25	17.42

continued →

Series 1500H (continued)

.1695" - .5000"
(4.305mm - 12.700mm)

EDP#	$d^{\dagger}$		Metric	l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Diameter							
59396	.1695	#18	4.305	2-1/2"	1-3/16"	19.08	18.25	17.42	16.59
59401	.1719	11/64"	4.366	2-1/2"	1-3/16"	19.08	18.25	17.42	16.59
59406	.1730	#17	4.394	2-1/2"	1-3/16"	19.45	18.60	17.76	16.91
59411	.1770	#16	4.496	2-1/2"	1-3/16"	19.45	18.60	17.76	16.91
39251	.1772		4.500	63	28	19.45	18.60	17.76	16.91
59421	.1800	#15	4.572	2-1/2"	1-3/16"	19.45	18.60	17.76	16.91
59426	.1820	#14	4.623	2-1/2"	1-3/16"	20.39	19.50	18.62	17.73
59431	.1850	#13	4.700	2-1/2"	1-3/16"	20.39	19.50	18.62	17.73
59436	.1875	3/16"	4.763	2-1/2"	1-3/16"	19.68	18.82	17.97	17.11
59441	.1890	#12	4.801	2-1/2"	1-3/16"	21.78	20.83	19.89	18.94
59446	.1910	#11	4.851	2-1/2"	1-3/16"	21.78	20.83	19.89	18.94
59451	.1935	#10	4.915	2-1/2"	1-1/4"	22.89	21.89	20.90	19.90
59456	.1960	#9	4.978	2-1/2"	1-1/4"	22.89	21.89	20.90	19.90
39301	.1969		5.000	63	32	22.89	21.89	20.90	19.90
59466	.1990	#8	5.055	2-1/2"	1-1/4"	23.51	22.48	21.46	20.44
59471	.2010	#7	5.105	2-1/2"	1-1/4"	23.51	22.48	21.46	20.44
59476	.2031	13/64"	5.159	2-1/2"	1-1/4"	23.51	22.48	21.46	20.44
59481	.2040	#6	5.182	2-1/2"	1-1/4"	24.61	23.54	22.47	21.40
59486	.2055	#5	5.220	2-1/2"	1-1/4"	24.61	23.54	22.47	21.40
59491	.2090	#4	5.309	2-1/2"	1-1/4"	24.61	23.54	22.47	21.40
59496	.2130	#3	5.410	2-1/2"	1-1/4"	24.61	23.54	22.47	21.40
39351	.2165		5.500	63	32	24.61	23.54	22.47	21.40
59506	.2188	7/32"	5.558	2-1/2"	1-1/2"	24.61	23.54	22.47	21.40
59511	.2210	#2	5.613	2-1/2"	1-1/2"	26.08	24.95	23.81	22.68
59516	.2280	#1	5.791	2-1/2"	1-1/2"	26.08	24.95	23.81	22.68
59526	.2344	15/64"	5.954	2-1/2"	1-1/2"	28.62	27.38	26.13	24.89
39401	.2362		6.000	63	38	28.62	27.38	26.13	24.89
59551	.2500	1/4"	6.350	2-1/2"	1-1/2"	27.16	25.98	24.80	23.62
39451	.2559		6.500	63	38	34.98	33.46	31.94	30.42
59571	.2656	17/64"	6.746	2-1/2"	1-1/2"	34.98	33.46	31.94	30.42
39501	.2756		7.000	63	38	35.70	34.14	32.59	31.04
59601	.2812	9/32"	7.142	2-1/2"	1-1/2"	35.70	34.14	32.59	31.04
39521	.2953		7.500	63	41	37.18	35.56	33.95	32.33
59621	.2969	19/64"	7.541	2-1/2"	1-5/8"	37.18	35.56	33.95	32.33
59631	.3125	5/16"	7.938	2-1/2"	1-5/8"	37.18	35.56	33.95	32.33
39541	.3150		8.000	63	41	38.79	37.10	35.42	33.73
59651	.3281	21/64"	8.334	3"	1-5/8"	39.73	38.01	36.28	34.55
39561	.3346		8.500	76	41	43.64	41.75	39.85	37.95
59671	.3438	11/32"	8.733	3"	1-5/8"	43.64	41.75	39.85	37.95
39581	.3543		9.000	76	41	47.23	45.18	43.12	41.07
59691	.3594	23/64"	9.129	3"	1-3/4"	47.23	45.18	43.12	41.07
39601	.3740		9.500	76	41	50.91	48.70	46.48	44.27
59706	.3750	3/8"	9.525	3"	1-3/4"	50.91	48.70	46.48	44.27
59721	.3906	25/64"	9.921	3"	1-3/4"	57.19	54.70	52.22	49.73
39621	.3937		10.000	76	44	57.19	54.70	52.22	49.73
59741	.4062	13/32"	10.317	3"	1-3/4"	63.05	60.31	57.57	54.83
59756	.4219	27/64"	10.716	3"	1-3/4"	68.71	65.73	62.74	59.75
39661	.4331		11.000	76	44	69.78	66.75	63.71	60.68
59766	.4375	7/16"	11.113	3"	1-3/4"	69.78	66.75	63.71	60.68
39681	.4528		11.500	76	44	71.59	68.48	65.36	62.25
59776	.4531	29/64"	11.509	3"	1-3/4"	72.82	69.65	66.49	63.32
59781	.4688	15/32"	11.908	3"	1-3/4"	72.82	69.65	66.49	63.32
39701	.4724		12.000	76	44	72.82	69.65	66.49	63.32
59791	.4844	31/64"	12.304	3"	1-3/4"	72.82	69.65	66.49	63.32
39721	.4921		12.500	76	44	74.27	71.04	67.81	64.58
59801	.5000	1/2"	12.700	3"	1-3/4"	74.27	71.04	67.81	64.58

TOLERANCES

d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)
l_2	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)


**TECH
PAGES
318-321**
Series 1510

 .0625" - .1575"
(1.588mm - 4.000mm)

Recommended for titanium, inconel, hastelloy, waspalo, and stainless steel
Slow Helix

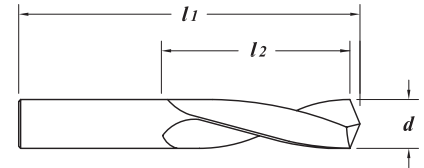
Solid submicron grain carbide drill

Heavy web for extra rigidity and added strength

Thinned point

Live tooling recommended on lathe processes

Hardlube Coating - page 64



EDP#	d † Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
19070	.0625	1/16"	1.588	1-3/4"	5/8"	7.81	7.47	7.13
19075	.0635	#52	1.613	1-3/4"	11/16"	7.94	7.59	7.25
19080	.0670	#51	1.702	1-3/4"	11/16"	8.05	7.70	7.35
19085	.0700	#50	1.778	1-3/4"	11/16"	8.26	7.90	7.54
19090	.0730	#49	1.854	1-3/4"	11/16"	8.44	8.07	7.71
19095	.0760	#48	1.930	1-3/4"	11/16"	8.73	8.35	7.97
19100	.0781	5/64"	1.984	1-3/4"	11/16"	9.05	8.66	8.26
19105	.0785	#47	1.994	1-3/4"	3/4"	9.35	8.94	8.54
19115	.0787		2.000	45	19	9.51	9.10	8.68
19120	.0810	#46	2.057	1-3/4"	3/4"	9.65	9.23	8.81
19125	.0820	#45	2.083	1-3/4"	3/4"	9.94	9.50	9.07
19130	.0860	#44	2.184	1-3/4"	3/4"	10.27	9.82	9.38
19135	.0890	#43	2.261	1-3/4"	3/4"	10.57	10.11	9.65
19140	.0935	#42	2.375	1-3/4"	3/4"	10.72	10.25	9.79
19145	.0938	3/32"	2.383	1-3/4"	3/4"	10.97	10.49	10.02
19150	.0960	#41	2.438	1-13/16"	13/16"	11.05	10.57	10.09
19155	.0980	#40	2.489	1-13/16"	13/16"	11.20	10.71	10.23
19160	.0984		2.500	46	21	11.28	10.79	10.30
19165	.0995	#39	2.527	1-13/16"	13/16"	11.33	10.84	10.34
19170	.1015	#38	2.578	1-13/16"	13/16"	11.43	10.93	10.44
19175	.1040	#37	2.642	1-13/16"	13/16"	11.53	11.03	10.53
19180	.1065	#36	2.705	1-13/16"	13/16"	11.62	11.11	10.61
19185	.1094	7/64"	2.779	1-13/16"	13/16"	11.66	11.15	10.65
19190	.1100	#35	2.794	1-7/8"	7/8"	11.74	11.23	10.72
19195	.1110	#34	2.819	1-7/8"	7/8"	11.88	11.36	10.85
19200	.1130	#33	2.870	1-7/8"	7/8"	11.97	11.45	10.93
19205	.1160	#32	2.946	1-7/8"	7/8"	12.05	11.53	11.00
19210	.1181		3.000	48	22	12.17	11.64	11.11
19215	.1200	#31	3.048	1-7/8"	7/8"	12.29	11.76	11.22
19220	.1250	1/8"	3.175	1-7/8"	7/8"	12.42	11.88	11.34
19225	.1285	#30	3.264	1-15/16"	15/16"	12.75	12.20	11.64
19230	.1360	#29	3.454	1-15/16"	15/16"	13.09	12.52	11.95
19235	.1378		3.500	49	24	13.50	12.91	12.33
19240	.1405	#28	3.569	1-15/16"	15/16"	13.67	13.08	12.48
19245	.1406	9/64"	3.571	1-15/16"	15/16"	13.82	13.22	12.62
19250	.1440	#27	3.658	2-1/16"	1"	15.04	14.39	13.73
19255	.1470	#26	3.734	2-1/16"	1"	15.20	14.54	13.88
19260	.1495	#25	3.797	2-1/16"	1"	15.39	14.72	14.05
19265	.1520	#24	3.861	2-1/16"	1"	15.42	14.75	14.08
19270	.1540	#23	3.912	2-1/16"	1"	15.53	14.85	14.18
19275	.1562	5/32"	3.967	2-1/16"	1"	15.62	14.94	14.26
19280	.1570	#22	3.988	2-1/8"	1-1/16"	16.58	15.86	15.14
19285	.1575		4.000	54	27	16.81	16.08	15.35

continued →

Series 1510 (continued)

.1590" - .3346"
(4.039mm - 8.500mm)

EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
19290	.1590	#21	4.039	2-1/8"	1-1/16"	17.02	16.28	15.54
19295	.1610	#20	4.089	2-1/8"	1-1/16"	17.15	16.40	15.66
19300	.1660	#19	4.216	2-1/8"	1-1/16"	17.85	17.07	16.30
19305	.1695	#18	4.305	2-1/8"	1-1/16"	18.06	17.27	16.49
19310	.1719	11/64"	4.366	2-1/8"	1-1/16"	18.41	17.61	16.81
19315	.1730	#17	4.394	2-3/16"	1-1/8"	18.68	17.86	17.05
19320	.1770	#16	4.496	2-3/16"	1-1/8"	18.88	18.06	17.24
19325	.1772		4.500	56	29	19.00	18.17	17.35
19330	.1800	#15	4.572	2-3/16"	1-1/8"	19.08	18.25	17.42
19335	.1820	#14	4.623	2-3/16"	1-1/8"	19.50	18.66	17.81
19340	.1850	#13	4.700	2-3/16"	1-1/8"	19.65	18.80	17.94
19345	.1875	3/16"	4.763	2-3/16"	1-1/8"	19.73	18.88	18.02
19350	.1890	#12	4.801	2-1/4"	1-3/16"	20.38	19.49	18.61
19355	.1910	#11	4.851	2-1/4"	1-3/16"	20.62	19.72	18.83
19360	.1935	#10	4.915	2-1/4"	1-3/16"	21.56	20.63	19.69
19365	.1960	#9	4.978	2-1/4"	1-3/16"	22.13	21.16	20.20
19370	.1969		5.000	57	30	22.24	21.27	20.31
19375	.1990	#8	5.055	2-1/4"	1-3/16"	22.41	21.44	20.46
19380	.2010	#7	5.105	2-1/4"	1-3/16"	23.07	22.07	21.06
19385	.2031	13/64"	5.159	2-1/4"	1-3/16"	23.24	22.23	21.22
19390	.2040	#6	5.182	2-3/8"	1-1/4"	23.70	22.67	21.64
19395	.2055	#5	5.220	2-3/8"	1-1/4"	24.18	23.13	22.08
19400	.2090	#4	5.309	2-3/8"	1-1/4"	24.63	23.56	22.49
19405	.2130	#3	5.410	2-3/8"	1-1/4"	25.07	23.98	22.89
19410	.2165		5.500	60	32	25.24	24.15	23.05
19415	.2188	7/32"	5.558	2-3/8"	1-1/4"	25.44	24.33	23.23
19420	.2210	#2	5.613	2-7/16"	1-5/16"	26.04	24.90	23.77
19425	.2280	#1	5.791	2-7/16"	1-5/16"	26.22	25.08	23.94
19430	.2340	A	5.944	2-7/16"	1-5/16"	26.28	25.14	23.99
19435	.2344	15/64"	5.954	2-7/16"	1-5/16"	26.32	25.18	24.03
19440	.2362		6.000	64	35	26.39	25.25	24.10
19445	.2380	B	6.045	2-1/2"	1-3/8"	26.52	25.37	24.21
19450	.2420	C	6.147	2-1/2"	1-3/8"	26.69	25.53	24.37
19455	.2460	D	6.248	2-1/2"	1-3/8"	26.92	25.75	24.58
19460	.2500	1/4" / E	6.350	2-1/2"	1-3/8"	27.08	25.91	24.73
19465	.2559		6.500	67	37	27.74	26.53	25.33
19470	.2570	F	6.528	2-5/8"	1-7/16"	28.32	27.09	25.86
19475	.2610	G	6.629	2-5/8"	1-7/16"	28.90	27.64	26.39
19480	.2656	17/64"	6.746	2-5/8"	1-7/16"	29.49	28.20	26.92
19485	.2660	H	6.756	2-11/16"	1-1/2"	30.33	29.01	27.69
19490	.2720	I	6.909	2-11/16"	1-1/2"	30.68	29.35	28.01
19495	.2756		7.000	68	38	30.92	29.58	28.23
19500	.2770	J	7.036	2-11/16"	1-1/2"	31.20	29.84	28.49
19505	.2810	K	7.137	2-11/16"	1-1/2"	31.48	30.11	28.74
19510	.2812	9/32"	7.142	2-11/16"	1-1/2"	31.65	30.27	28.90
19515	.2900	L	7.366	2-3/4"	1-9/16"	32.82	31.39	29.97
19520	.2950	M	7.493	2-3/4"	1-9/16"	35.12	33.59	32.07
19525	.2953		7.500	70	40	35.12	33.59	32.07
19530	.2969	19/64"	7.541	2-3/4"	1-9/16"	35.32	33.78	32.25
19535	.3020	N	7.671	2-15/16"	1-5/8"	37.19	35.57	33.96
19540	.3125	5/16"	7.938	2-15/16"	1-5/8"	37.34	35.72	34.09
19545	.3150		8.000	75	43	40.07	38.32	36.58
19550	.3160	O	8.026	2-15/16"	1-11/16"	40.07	38.32	36.58
19555	.3230	P	8.204	2-15/16"	1-11/16"	40.41	38.65	36.90
19560	.3281	21/64"	8.334	2-15/16"	1-11/16"	40.65	38.89	37.12
19565	.3320	Q	8.433	3"	1-11/16"	41.60	39.79	37.98
19570	.3346		8.500	76	43	41.99	40.16	38.34

EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
19575	.3390	R	8.611	3"	1-11/16"	43.30	41.42	39.53
19580	.3438	11/32"	8.733	3"	1-11/16"	45.06	43.10	41.14
19585	.3480	S	8.839	3-1/16"	1-3/4"	45.68	43.69	41.71
19590	.3543		9.000	78	44	45.95	43.96	41.96
19595	.3580	T	9.093	3-1/16"	1-3/4"	46.13	44.12	42.12
19600	.3594	23/64"	9.129	3-1/16"	1-3/4"	46.44	44.42	42.40
19605	.3680	U	9.347	3-1/8"	1-13/16"	50.86	48.65	46.44
19615	.3750	3/8"	9.525	3-1/8"	1-13/16"	51.74	49.49	47.24
19620	.3770	V	9.576	3-1/4"	1-7/8"	52.74	50.45	48.15
19625	.3860	W	9.804	3-1/4"	1-7/8"	53.84	51.50	49.16
19630	.3906	25/64"	9.921	3-1/4"	1-7/8"	54.67	52.29	49.92
19635	.3937		10.000	84	49	56.61	54.15	51.69
19640	.3970	X	10.084	3-5/16"	1-15/16"	58.27	55.74	53.20
19645	.4040	Y	10.262	3-5/16"	1-15/16"	58.73	56.18	53.62
19650	.4062	13/32"	10.317	3-5/16"	1-15/16"	60.87	58.22	55.58
19655	.4130	Z	10.490	3-3/8"	2"	61.53	58.85	56.18
19660	.4134		10.500	86	51	61.53	58.85	56.18
19665	.4219	27/64"	10.716	3-3/8"	2"	62.20	59.50	56.79
19670	.4331		11.000	87	52	67.56	64.63	61.69
19675	.4375	7/16"	11.113	3-7/16"	2-1/16"	67.56	64.63	61.69
19685	.4531	29/64"	11.509	3-9/16"	2-1/8"	73.27	70.08	66.90
19690	.4688	15/32"	11.908	3-5/8"	2-1/8"	77.50	74.13	70.76
19695	.4724		12.000	94	56	77.77	74.39	71.01
19700	.4844	31/64"	12.304	3-11/16"	2-3/16"	78.38	74.98	71.57
19705	.4921		12.500	95	56	79.26	75.81	72.37
19710	.5000	1/2"	12.700	3-3/4"	2-1/4"	79.83	76.36	72.89
19720	.5156	33/64"	13.096	4-1/4"	2-3/8"	107.28	102.62	97.95
19725	.5312	17/32"	13.492	4-1/4"	2-3/8"	110.07	105.28	100.50
19730	.5315		13.500	107	60	112.91	108.00	103.09
19735	.5469	35/64"	13.891	4-1/4"	2-3/8"	115.69	110.66	105.63
19740	.5512		14.000	107	60	118.51	113.36	108.20
19745	.5625	9/16"	14.287	4-1/2"	2-1/2"	129.23	123.61	117.99
19755	.5781	37/64"	14.683	4-1/2"	2-1/2"	134.62	128.77	122.91
19760	.5906		15.000	115	65	137.36	131.38	125.41
19765	.5938	19/32"	15.082	4-1/2"	2-1/2"	138.15	132.14	126.14
19770	.6094	39/64"	15.478	4-1/2"	2-1/2"	138.92	132.88	126.84
19780	.6250	5/8"	15.875	4-1/2"	2-1/2"	140.48	134.38	128.27
19785	.6299		16.000	115	65	144.22	137.95	131.68

Series 1510H

NEW
ITEMS.0625" - .1575"
(1.588mm - 4.000mm)

TOLERANCES

d	+.0000" -.0005" (+.0000 -.0127mm)	
l ₁	≤ 1/8"	+.125" -.062" (+3.175 -1.588mm)
	> 1/8"	+.125" -.125" (+3.175 -3.175mm)
l ₂	≤ 1/8"	+.125" -.062" (+3.175 -1.588mm)
	> 1/8"	+.125" -.125" (+3.175 -3.175mm)

Recommended for titanium, inconel, hastelloy, waspaloy, and stainless steel

Slow Helix

Hardlube Coating

Solid submicron grain carbide drill

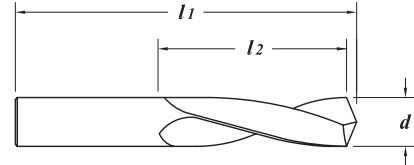
Excellent heat resistance and lubricity

Heavy web for extra rigidity and added strength

Thinned point

Live tooling recommended on lathe processes

Uncoated - page 61



EDP#	d [†]		l ₁	l ₂	1-11	12-24	25-49	50-100
	Decimal	Metric	Overall Length	Flute Length				
19071	.0625	1/16"	1.588	1-3/4"	5/8"	9.89	9.46	9.03
19076	.0635	#52	1.613	1-3/4"	11/16"	10.03	9.59	9.16
19081	.0670	#51	1.702	1-3/4"	11/16"	10.13	9.69	9.25
19086	.0700	#50	1.778	1-3/4"	11/16"	10.34	9.89	9.44
19091	.0730	#49	1.854	1-3/4"	11/16"	10.55	10.09	9.63
19096	.0760	#48	1.930	1-3/4"	11/16"	10.81	10.34	9.87
19101	.0781	5/64"	1.984	1-3/4"	11/16"	11.14	10.66	10.17
19106	.0785	#47	1.994	1-3/4"	3/4"	11.44	10.95	10.45
19116	.0787		2.000	45	19	11.59	11.09	10.58
19121	.0810	#46	2.057	1-3/4"	3/4"	11.74	11.23	10.72
19126	.0820	#45	2.083	1-3/4"	3/4"	12.04	11.52	10.99
NEW 19128	.0827		2.100	45	19	12.13	11.61	11.08
19131	.0860	#44	2.184	1-3/4"	3/4"	12.35	11.81	11.28
19136	.0890	#43	2.261	1-3/4"	3/4"	12.66	12.11	11.56
NEW 19138	.0906		2.300	45	19	12.70	12.14	11.59
19141	.0935	#42	2.375	1-3/4"	3/4"	12.80	12.24	11.69
19146	.0938	3/32"	2.383	1-3/4"	3/4"	13.06	12.50	11.93
NEW 19148	.0945		2.400	46	21	13.11	12.54	11.97
19151	.0960	#41	2.438	1-13/16"	13/16"	13.14	12.57	12.00
19156	.0980	#40	2.489	1-13/16"	13/16"	13.29	12.72	12.14
19161	.0984		2.500	46	21	13.37	12.79	12.21
19166	.0995	#39	2.527	1-13/16"	13/16"	13.44	12.86	12.27
19171	.1015	#38	2.578	1-13/16"	13/16"	13.51	12.93	12.34
19176	.1040	#37	2.642	1-13/16"	13/16"	13.59	13.00	12.41
19181	.1065	#36	2.705	1-13/16"	13/16"	13.70	13.10	12.51
19186	.1094	7/64"	2.779	1-13/16"	13/16"	13.78	13.18	12.58
19191	.1100	#35	2.794	1-7/8"	7/8"	13.83	13.23	12.63
19196	.1110	#34	2.819	1-7/8"	7/8"	13.97	13.37	12.76
19201	.1130	#33	2.870	1-7/8"	7/8"	14.05	13.44	12.83
19206	.1160	#32	2.946	1-7/8"	7/8"	14.15	13.53	12.92
19211	.1181		3.000	48	22	14.27	13.65	13.03
19216	.1200	#31	3.048	1-7/8"	7/8"	14.36	13.74	13.11
NEW 19218	.1220		3.100	48	22	14.43	13.81	13.18
19221	.1250	1/8"	3.175	1-7/8"	7/8"	14.52	13.89	13.26
19226	.1285	#30	3.264	1-15/16"	15/16"	14.85	14.20	13.56
19231	.1360	#29	3.454	1-15/16"	15/16"	15.17	14.51	13.85
19236	.1378		3.500	49	24	15.59	14.92	14.24
19241	.1405	#28	3.569	1-15/16"	15/16"	15.78	15.09	14.41
19246	.1406	9/64"	3.571	1-15/16"	15/16"	15.89	15.20	14.51
19251	.1440	#27	3.658	2-1/16"	1"	17.14	16.39	15.65
19256	.1470	#26	3.734	2-1/16"	1"	17.30	16.54	15.79
19261	.1495	#25	3.797	2-1/16"	1"	17.50	16.74	15.98
19266	.1520	#24	3.861	2-1/16"	1"	17.53	16.76	16.00
19271	.1540	#23	3.912	2-1/16"	1"	17.62	16.85	16.09
19276	.1562	5/32"	3.967	2-1/16"	1"	17.71	16.94	16.17
19281	.1570	#22	3.988	2-1/8"	1-1/16"	18.68	17.86	17.05
19286	.1575		4.000	54	27	18.88	18.06	17.24

EDP#	d^+ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
19291	.1590	#21	4.039	2-1/8"	1-1/16"	19.10	18.27	17.44
19296	.1610	#20	4.089	2-1/8"	1-1/16"	19.24	18.40	17.57
19301	.1660	#19	4.216	2-1/8"	1-1/16"	19.93	19.06	18.20
19306	.1695	#18	4.305	2-1/8"	1-1/16"	20.14	19.26	18.39
19311	.1719	11/64"	4.366	2-1/8"	1-1/16"	20.52	19.62	18.73
19316	.1730	#17	4.394	2-3/16"	1-1/8"	20.77	19.87	18.96
19321	.1770	#16	4.496	2-3/16"	1-1/8"	20.99	20.08	19.16
19326	.1772		4.500	56	29	21.07	20.15	19.24
19331	.1800	#15	4.572	2-3/16"	1-1/8"	21.16	20.24	19.32
19336	.1820	#14	4.623	2-3/16"	1-1/8"	21.60	20.66	19.72
19341	.1850	#13	4.700	2-3/16"	1-1/8"	21.76	20.81	19.87
19346	.1875	3/16"	4.763	2-3/16"	1-1/8"	21.82	20.87	19.92
19351	.1890	#12	4.801	2-1/4"	1-3/16"	23.99	22.95	21.90
19356	.1910	#11	4.851	2-1/4"	1-3/16"	24.24	23.19	22.13
19361	.1935	#10	4.915	2-1/4"	1-3/16"	25.19	24.09	23.00
19366	.1960	#9	4.978	2-1/4"	1-3/16"	25.75	24.63	23.51
19371	.1969		5.000	57	30	25.88	24.75	23.63
19376	.1990	#8	5.055	2-1/4"	1-3/16"	26.01	24.88	23.75
19381	.2010	#7	5.105	2-1/4"	1-3/16"	26.68	25.52	24.36
19386	.2031	13/64"	5.159	2-1/4"	1-3/16"	26.84	25.67	24.51
19391	.2040	#6	5.182	2-3/8"	1-1/4"	27.32	26.14	24.95
19396	.2055	#5	5.220	2-3/8"	1-1/4"	27.82	26.61	25.40
19401	.2090	#4	5.309	2-3/8"	1-1/4"	28.22	26.99	25.77
19406	.2130	#3	5.410	2-3/8"	1-1/4"	28.67	27.42	26.18
19411	.2165		5.500	60	32	28.88	27.62	26.37
19416	.2188	7/32"	5.558	2-3/8"	1-1/4"	29.05	27.79	26.52
19421	.2210	#2	5.613	2-7/16"	1-5/16"	29.66	28.37	27.08
19426	.2280	#1	5.791	2-7/16"	1-5/16"	29.83	28.53	27.24
19431	.2340	A	5.944	2-7/16"	1-5/16"	29.90	28.60	27.30
19436	.2344	15/64"	5.954	2-7/16"	1-5/16"	29.93	28.63	27.33
19441	.2362		6.000	64	35	30.03	28.72	27.42
19446	.2380	B	6.045	2-1/2"	1-3/8"	30.13	28.82	27.51
19451	.2420	C	6.147	2-1/2"	1-3/8"	30.31	29.00	27.68
19456	.2460	D	6.248	2-1/2"	1-3/8"	30.52	29.19	27.87
19461	.2500	1/4" / E	6.350	2-1/2"	1-3/8"	30.71	29.37	28.04
19466	.2559		6.500	67	37	34.16	32.67	31.19
19471	.2570	F	6.528	2-5/8"	1-7/16"	34.74	33.23	31.72
19476	.2610	G	6.629	2-5/8"	1-7/16"	35.32	33.78	32.25
19481	.2656	17/64"	6.746	2-5/8"	1-7/16"	35.90	34.34	32.78
19486	.2660	H	6.756	2-11/16"	1-1/2"	36.74	35.15	33.55
19491	.2720	I	6.909	2-11/16"	1-1/2"	37.09	35.48	33.86
19496	.2756		7.000	68	38	37.34	35.72	34.09
19501	.2770	J	7.036	2-11/16"	1-1/2"	37.63	35.99	34.36
19506	.2810	K	7.137	2-11/16"	1-1/2"	37.90	36.26	34.61
19511	.2812	9/32"	7.142	2-11/16"	1-1/2"	38.03	36.38	34.72
19516	.2900	L	7.366	2-3/4"	1-9/16"	39.22	37.51	35.81
19521	.2950	M	7.493	2-3/4"	1-9/16"	41.53	39.72	37.92
19526	.2953		7.500	70	40	41.53	39.72	37.92
19531	.2969	19/64"	7.541	2-3/4"	1-9/16"	41.70	39.89	38.07
19536	.3020	N	7.671	2-15/16"	1-5/8"	43.62	41.72	39.83
19541	.3125	5/16"	7.938	2-15/16"	1-5/8"	43.76	41.86	39.95
19546	.3150		8.000	75	43	46.47	44.45	42.43
19551	.3160	O	8.026	2-15/16"	1-11/16"	46.47	44.45	42.43
19556	.3230	P	8.204	2-15/16"	1-11/16"	46.82	44.78	42.75
19561	.3281	21/64"	8.334	2-15/16"	1-11/16"	47.06	45.01	42.97
19566	.3320	Q	8.433	3"	1-11/16"	48.01	45.93	43.84
19571	.3346		8.500	76	43	48.40	46.30	44.19

continued →

Series 1510H (continued)

.3390" - .6299"
(8.611mm - 16.000mm)

EDP#	$d^{\dagger}$ Diameter			l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal		Metric						
19576	.3390	R	8.611	3"	1-11/16"	49.70	47.54	45.38	43.22
19581	.3438	11/32"	8.733	3"	1-11/16"	51.47	49.24	47.00	44.76
19586	.3480	S	8.839	3-1/16"	1-3/4"	54.36	52.00	49.63	47.27
19591	.3543		9.000	78	44	54.67	52.29	49.92	47.54
19596	.3580	T	9.093	3-1/16"	1-3/4"	54.80	52.42	50.03	47.65
19601	.3594	23/64"	9.129	3-1/16"	1-3/4"	55.14	52.75	50.35	47.95
19606	.3680	U	9.347	3-1/8"	1-13/16"	59.56	56.97	54.38	51.79
19611	.3740		9.500	79	46	60.04	57.43	54.82	52.21
19616	.3750	3/8"	9.525	3-1/8"	1-13/16"	60.44	57.82	55.19	52.56
19621	.3770	V	9.576	3-1/4"	1-7/8"	62.71	59.98	57.26	54.53
19626	.3860	W	9.804	3-1/4"	1-7/8"	63.80	61.03	58.25	55.48
19631	.3906	25/64"	9.921	3-1/4"	1-7/8"	64.60	61.79	58.98	56.17
19636	.3937		10.000	84	49	66.56	63.67	60.77	57.88
19641	.3970	X	10.084	3-5/16"	1-15/16"	68.24	65.27	62.31	59.34
19646	.4040	Y	10.262	3-5/16"	1-15/16"	68.71	65.73	62.74	59.75
19651	.4062	13/32"	10.317	3-5/16"	1-15/16"	70.81	67.73	64.65	61.57
19656	.4130	Z	10.490	3-3/8"	2"	71.47	68.37	65.26	62.15
19661	.4134		10.500	86	51	71.47	68.37	65.26	62.15
19666	.4219	27/64"	10.716	3-3/8"	2"	72.14	69.00	65.87	62.73
19671	.4331		11.000	87	52	77.50	74.13	70.76	67.39
19676	.4375	7/16"	11.113	3-7/16"	2-1/16"	77.50	74.13	70.76	67.39
19681	.4528		11.500	91	54	83.21	79.60	75.98	72.36
19686	.4531	29/64"	11.509	3-9/16"	2-1/8"	83.21	79.60	75.98	72.36
19691	.4688	15/32"	11.908	3-5/8"	2-1/8"	87.43	83.63	79.83	76.03
19696	.4724		12.000	94	56	87.72	83.91	80.09	76.28
19701	.4844	31/64"	12.304	3-11/16"	2-3/16"	88.32	84.48	80.64	76.80
19706	.4921		12.500	95	56	89.22	85.34	81.46	77.58
19711	.5000	1/2"	12.700	3-3/4"	2-1/4"	89.79	85.89	81.98	78.08
19716	.5118		13.000	107	60	118.91	113.74	108.57	103.40
19721	.5156	33/64"	13.096	4-1/4"	2-3/8"	121.70	116.41	111.12	105.83
19726	.5312	17/32"	13.492	4-1/4"	2-3/8"	124.50	119.09	113.67	108.26
19731	.5315		13.500	107	60	127.31	121.77	116.24	110.70
19736	.5469	35/64"	13.891	4-1/4"	2-3/8"	130.09	124.43	118.78	113.12
19741	.5512		14.000	107	60	132.93	127.15	121.37	115.59
19746	.5625	9/16"	14.287	4-1/2"	2-1/2"	143.65	137.40	131.16	124.91
19751	.5709		14.500	115	65	146.34	139.98	133.61	127.25
19756	.5781	37/64"	14.683	4-1/2"	2-1/2"	149.03	142.55	136.07	129.59
19761	.5906		15.000	115	65	151.77	145.17	138.57	131.97
19766	.5938	19/32"	15.082	4-1/2"	2-1/2"	152.56	145.93	139.29	132.66
19771	.6094	39/64"	15.478	4-1/2"	2-1/2"	153.34	146.67	140.01	133.34
19776	.6102		15.500	115	65	154.12	147.42	140.72	134.02
19781	.6250	5/8"	15.875	4-1/2"	2-1/2"	154.92	148.18	141.45	134.71
19786	.6299		16.000	115	65	158.67	151.77	144.87	137.97

TOLERANCES

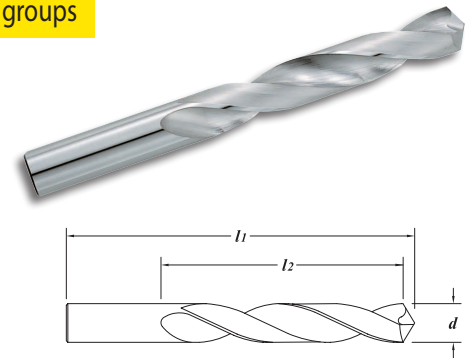
d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)
l_2	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)

**NEW
ITEMS**
Series 1520, 1205

 .0625" - .1015"
(1.588mm - 2.578mm)

General purpose for all material groups

Solid submicron grain carbide drill
 No spotting required in most applications
 4-facet self-centering point
 Live tooling recommended on lathe processes
 Hardlube Coating - page 73



3xD (1520) EDP#	5xD (1205) EDP#	d † Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77165		.0625	1/16"	1.588	1-3/4"	5/8"	7.42	7.10	6.45
	89165	.0625	1/16"	1.588	1-3/4"	3/4"	7.42	7.10	6.45
77170		.0635	#52	1.613	1-3/4"	11/16"	7.52	7.19	6.54
	89170	.0635	#52	1.613	1-3/4"	3/4"	7.52	7.19	6.54
77175		.0670	#51	1.702	1-3/4"	11/16"	7.64	7.30	6.64
	89175	.0670	#51	1.702	1-3/4"	3/4"	7.64	7.30	6.64
77180		.0700	#50	1.778	1-3/4"	11/16"	7.82	7.48	6.80
	89180	.0700	#50	1.778	1-3/4"	7/8"	7.82	7.14	6.80
77185		.0730	#49	1.854	1-3/4"	11/16"	8.03	7.68	6.98
	89185	.0730	#49	1.854	1-3/4"	7/8"	8.03	7.33	6.98
77190		.0760	#48	1.930	1-3/4"	11/16"	8.29	7.93	7.21
	89190	.0760	#48	1.930	1-3/4"	7/8"	8.29	7.57	7.21
77195		.0781	5/64"	1.984	1-3/4"	11/16"	8.60	8.23	7.48
	89195	.0781	5/64"	1.984	1-3/4"	7/8"	8.60	7.85	7.48
77200		.0785	#47	1.994	1-3/4"	3/4"	8.89	8.50	7.73
	89200	.0785	#47	1.994	1-3/4"	7/8"	8.89	8.12	7.73
77205		.0787		2.000	44	19	9.03	8.64	7.85
	89205	.0787		2.000	44	22	9.03	8.24	7.85
77210		.0810	#46	2.057	1-3/4"	3/4"	9.18	8.78	7.98
	89210	.0810	#46	2.057	1-3/4"	7/8"	9.18	8.38	7.98
77215		.0820	#45	2.083	1-3/4"	3/4"	9.45	9.04	8.22
	89215	.0820	#45	2.083	1-3/4"	7/8"	9.45	8.63	8.22
77220		.0860	#44	2.184	1-3/4"	3/4"	9.76	9.34	8.49
	89220	.0860	#44	2.184	2"	1"	9.76	8.91	8.49
77225		.0890	#43	2.261	1-3/4"	3/4"	10.04	9.60	8.73
	89225	.0890	#43	2.261	2"	1"	10.04	9.17	8.73
77230		.0935	#42	2.375	1-3/4"	3/4"	10.18	9.74	8.85
	89230	.0935	#42	2.375	2"	1"	10.18	9.29	8.85
77235		.0938	3/32"	2.383	1-3/4"	3/4"	10.41	9.96	9.05
	89235	.0938	3/32"	2.383	2"	1"	10.41	9.50	9.05
77240		.0960	#41	2.438	1-13/16"	13/16"	10.50	10.04	9.13
	89240	.0960	#41	2.438	2"	1"	10.50	9.59	9.13
77245		.0980	#40	2.489	1-13/16"	13/16"	10.66	10.20	9.27
	89245	.0980	#40	2.489	2"	1"	10.66	9.73	9.27
77250		.0984		2.500	46	21	10.72	10.25	9.32
	89250	.0984		2.500	57	32	10.72	9.79	9.32
77255		.0995	#39	2.527	1-13/16"	13/16"	10.76	10.30	9.36
	89255	.0995	#39	2.527	2-1/4"	1-1/4"	10.76	9.83	9.36
77260		.1015	#38	2.578	1-13/16"	13/16"	10.86	10.38	9.44
	89260	.1015	#38	2.578	2-1/4"	1-1/4"	10.89	9.94	9.47

continued →

Series 1520, 1205 (continued)

.1040" - .1719"
(2.642mm - 4.366mm)

3xD (1520) EDP#	5xD (1205) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77265		.1040	#37	2.642	1-13/16"	13/16"	10.95	10.47	10.00
	89265	.1040	#37	2.642	2-1/4"	1-1/4"	11.04	10.56	10.08
77270		.1065	#36	2.705	1-13/16"	13/16"	11.02	10.54	10.06
	89270	.1065	#36	2.705	2-1/4"	1-1/4"	11.18	10.69	10.21
77275		.1094	7/64"	2.779	1-13/16"	13/16"	11.09	10.60	10.12
	89275	.1094	7/64"	2.779	2-1/4"	1-1/4"	11.36	10.87	10.37
77280		.1100	#35	2.794	1-7/8"	7/8"	11.16	10.67	10.19
	89280	.1100	#35	2.794	2-1/4"	1-1/4"	11.49	10.99	10.49
77285		.1110	#34	2.819	1-7/8"	7/8"	11.29	10.80	10.31
	89285	.1110	#34	2.819	2-1/4"	1-1/4"	11.63	11.12	10.62
77290		.1130	#33	2.870	1-7/8"	7/8"	11.36	10.87	10.37
	89290	.1130	#33	2.870	2-1/4"	1-1/4"	11.85	11.33	10.82
77295		.1160	#32	2.946	1-7/8"	7/8"	11.44	10.95	10.45
	89295	.1160	#32	2.946	2-1/4"	1-1/4"	11.97	11.45	10.93
77300		.1181		3.000	48	22	11.58	11.08	10.57
	89300	.1181		3.000	57	32	12.09	11.56	11.04
77305		.1200	#31	3.048	1-7/8"	7/8"	11.65	11.14	10.64
	89305	.1200	#31	3.048	2-1/4"	1-1/4"	12.17	11.64	11.11
77310		.1250	1/8"	3.175	1-7/8"	7/8"	11.78	11.26	10.75
	89310	.1250	1/8"	3.175	2-1/4"	1-1/4"	12.32	11.78	11.25
77315		.1285	#30	3.264	1-15/16"	15/16"	12.10	11.57	11.05
	89315	.1285	#30	3.264	2-1/4"	1-1/4"	12.63	12.08	11.53
77320		.1360	#29	3.454	1-15/16"	15/16"	12.42	11.88	11.34
	89320	.1360	#29	3.454	2-1/2"	1-3/8"	13.03	12.46	11.90
77325		.1378		3.500	49	24	12.82	12.27	11.71
	89325	.1378		3.500	63	35	13.46	12.87	12.29
77330		.1405	#28	3.569	1-15/16"	15/16"	13.00	12.43	11.87
	89330	.1405	#28	3.569	2-1/2"	1-3/8"	13.58	12.99	12.40
77335		.1406	9/64"	3.571	1-15/16"	15/16"	13.12	12.55	11.98
	89335	.1406	9/64"	3.571	2-1/2"	1-3/8"	13.74	13.15	12.55
77340		.1440	#27	3.658	2-1/16"	1"	14.28	13.66	13.04
	89340	.1440	#27	3.658	2-1/2"	1-3/8"	14.28	13.66	13.04
77345		.1470	#26	3.734	2-1/16"	1"	14.42	13.79	13.17
	89345	.1470	#26	3.734	2-1/2"	1-3/8"	14.42	13.79	13.17
77350		.1495	#25	3.797	2-1/16"	1"	14.62	13.98	13.35
	89350	.1495	#25	3.797	2-1/2"	1-3/8"	14.62	13.98	13.35
77355		.1520	#24	3.861	2-1/16"	1"	14.64	14.00	13.37
	89355	.1520	#24	3.861	2-1/2"	1-3/8"	14.64	14.00	13.37
77360		.1540	#23	3.912	2-1/16"	1"	14.74	14.10	13.46
	89360	.1540	#23	3.912	2-1/2"	1-3/8"	14.74	14.10	13.46
77365		.1562	5/32"	3.967	2-1/16"	1"	14.85	14.20	13.56
	89365	.1562	5/32"	3.967	2-1/2"	1-3/8"	14.85	14.20	13.56
77370		.1570	#22	3.988	2-1/8"	1-1/16"	15.78	15.09	14.41
	89370	.1570	#22	3.988	2-1/2"	1-3/8"	15.78	15.09	14.41
77375		.1575		4.000	54	27	15.97	15.28	14.58
	89375	.1575		4.000	63	35	15.97	15.28	14.58
77380		.1590	#21	4.039	2-1/8"	1-1/16"	16.16	15.46	14.75
	89380	.1590	#21	4.039	2-1/2"	1-3/8"	16.16	15.46	14.75
77385		.1610	#20	4.089	2-1/8"	1-1/16"	16.27	15.57	14.86
	89385	.1610	#20	4.089	2-1/2"	1-3/8"	16.27	15.57	14.86
77390		.1660	#19	4.216	2-1/8"	1-1/16"	16.94	16.20	15.47
	89390	.1660	#19	4.216	2-3/4"	1-5/8"	16.94	16.20	15.47
77395		.1695	#18	4.305	2-1/8"	1-1/16"	17.15	16.40	15.66
	89395	.1695	#18	4.305	2-3/4"	1-5/8"	17.15	16.40	15.66
77400		.1719	11/64"	4.366	2-1/8"	1-1/16"	17.51	16.75	15.99
	89400	.1719	11/64"	4.366	2-3/4"	1-5/8"	17.51	16.75	15.99

3xD (1520) EDP#	5xD (1205) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77405		.1730	#17	4.394	2-3/16"	1-1/8"	17.74	16.97	16.20
	89405	.1730	#17	4.394	2-3/4"	1-5/8"	17.74	16.97	16.20
77410		.1770	#16	4.496	2-3/16"	1-1/8"	17.94	17.16	16.38
	89410	.1770	#16	4.496	2-3/4"	1-5/8"	17.94	17.16	16.38
77415		.1772		4.500	56	29	18.03	17.25	16.46
	89415	.1772		4.500	70	41	18.03	17.25	16.46
77420		.1800	#15	4.572	2-3/16"	1-1/8"	18.11	17.33	16.54
	89420	.1800	#15	4.572	2-3/4"	1-5/8"	18.11	17.33	16.54
77425		.1820	#14	4.623	2-3/16"	1-1/8"	18.53	17.72	16.92
	89425	.1820	#14	4.623	2-3/4"	1-5/8"	18.53	17.72	16.92
77430		.1850	#13	4.700	2-3/16"	1-1/8"	18.66	17.85	17.04
	89430	.1850	#13	4.700	2-3/4"	1-5/8"	18.66	17.85	17.04
77435		.1875	3/16"	4.763	2-3/16"	1-1/8"	18.76	17.94	17.13
	89435	.1875	3/16"	4.763	2-3/4"	1-5/8"	18.76	17.94	17.13
77440		.1890	#12	4.801	2-1/4"	1-3/16"	19.37	18.52	17.68
	89440	.1890	#12	4.801	2-3/4"	1-5/8"	19.37	18.52	17.68
77445		.1910	#11	4.851	2-1/4"	1-3/16"	19.57	18.72	17.87
	89445	.1910	#11	4.851	2-3/4"	1-5/8"	19.57	18.72	17.87
77450		.1935	#10	4.915	2-1/4"	1-3/16"	20.52	19.62	18.73
	89450	.1935	#10	4.915	2-3/4"	1-5/8"	20.52	19.62	18.73
77455		.1960	#9	4.978	2-1/4"	1-3/16"	21.02	20.11	19.19
	89455	.1960	#9	4.978	3"	1-3/4"	21.02	20.11	19.19
77460		.1969		5.000	57	30	21.15	20.23	19.31
	89460	.1969		5.000	76	44	21.15	20.23	19.31
77465		.1990	#8	5.055	2-1/4"	1-3/16"	21.29	20.36	19.44
	89465	.1990	#8	5.055	3"	1-3/4"	21.29	20.36	19.44
77470		.2010	#7	5.105	2-1/4"	1-3/16"	21.91	20.96	20.00
	89470	.2010	#7	5.105	3"	1-3/4"	21.91	20.96	20.00
77475		.2031	13/64"	5.159	2-1/4"	1-3/16"	22.08	21.12	20.16
	89475	.2031	13/64"	5.159	3"	1-3/4"	22.08	21.12	20.16
77480		.2040	#6	5.182	2-3/8"	1-1/4"	22.53	21.55	20.57
	89480	.2040	#6	5.182	3"	1-3/4"	22.53	21.55	20.57
77485		.2055	#5	5.220	2-3/8"	1-1/4"	23.00	22.00	21.00
	89485	.2055	#5	5.220	3"	1-3/4"	23.00	22.00	21.00
77490		.2090	#4	5.309	2-3/8"	1-1/4"	23.39	22.37	21.36
	89490	.2090	#4	5.309	3"	1-3/4"	23.39	22.37	21.36
77495		.2130	#3	5.410	2-3/8"	1-1/4"	23.81	22.77	21.74
	89495	.2130	#3	5.410	3"	1-3/4"	23.81	22.77	21.74
77500		.2165		5.500	60	32	23.99	22.95	21.90
	89500	.2165		5.500	76	44	23.99	22.95	21.90
77505		.2188	7/32"	5.558	2-3/8"	1-1/4"	24.16	23.11	22.06
	89505	.2188	7/32"	5.558	3"	1-3/4"	24.16	23.11	22.06
77510		.2210	#2	5.613	2-7/16"	1-5/16"	24.76	23.68	22.61
	89510	.2210	#2	5.613	3"	1-3/4"	24.76	23.68	22.61
77515		.2280	#1	5.791	2-7/16"	1-5/16"	24.90	23.82	22.73
	89515	.2280	#1	5.791	3"	1-3/4"	24.90	23.82	22.73
77520		.2340	A	5.944	2-7/16"	1-5/16"	24.94	23.86	22.77
	89520	.2340	A	5.944	3-1/4"	2"	25.19	24.09	23.00
77525		.2344	15/64"	5.954	2-7/16"	1-5/16"	25.02	23.94	22.85
	89525	.2344	15/64"	5.954	3-1/4"	2"	25.25	24.16	23.06
77530		.2362		6.000	64	35	25.10	24.01	22.92
	89530	.2362		6.000	82	50	25.36	24.26	23.15
77535		.2380	B	6.045	2-1/2"	1-3/8"	25.19	24.09	23.00
	89535	.2380	B	6.045	3-1/4"	2"	25.44	24.33	23.23
77540		.2420	C	6.147	2-1/2"	1-3/8"	25.38	24.28	23.17
	89540	.2420	C	6.147	3-1/4"	2"	25.63	24.52	23.40

continued →

Series 1520, 1205 (continued)

.2460" - .3543"
(6.248mm - 9.000mm)

3xD (1520) EDP#	5xD (1205) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77545		.2460	D	6.248	2-1/2"	1-3/8"	25.58	24.46	23.35
	89545	.2460	D	6.248	3-1/4"	2"	25.82	24.70	23.57
77550		.2500	1/4" / E	6.350	2-1/2"	1-3/8"	25.75	24.63	23.51
	89550	.2500	1/4" / E	6.350	3-1/4"	2"	26.00	24.87	23.74
77555		.2559		6.500	67	37	26.36	25.21	24.07
	89555	.2559		6.500	82	50	26.63	25.48	24.32
77560		.2570	F	6.528	2-5/8"	1-7/16"	26.92	25.75	24.58
	89560	.2570	F	6.528	3-1/4"	2"	27.17	25.99	24.81
77565		.2610	G	6.629	2-5/8"	1-7/16"	27.44	26.25	25.05
	89565	.2610	G	6.629	3-1/2"	2-1/8"	27.74	26.53	25.33
77570		.2656	17/64"	6.746	2-5/8"	1-7/16"	28.03	26.81	25.59
	89570	.2656	17/64"	6.746	3-1/2"	2-1/8"	28.30	27.07	25.84
77575		.2660	H	6.756	2-11/16"	1-1/2"	28.81	27.56	26.30
	89575	.2660	H	6.756	3-1/2"	2-1/8"	29.11	27.84	26.58
77580		.2720	I	6.909	2-11/16"	1-1/2"	29.14	27.87	26.61
	89580	.2720	I	6.909	3-1/2"	2-1/8"	29.43	28.15	26.87
77585		.2756		7.000	68	38	29.37	28.09	26.82
	89585	.2756		7.000	88	54	29.67	28.38	27.09
77590		.2770	J	7.036	2-11/16"	1-1/2"	29.66	28.37	27.08
	89590	.2770	J	7.036	3-1/2"	2-1/8"	29.93	28.63	27.33
77595		.2810	K	7.137	2-11/16"	1-1/2"	29.92	28.62	27.32
	89595	.2810	K	7.137	3-1/2"	2-1/8"	30.20	28.89	27.57
77600		.2812	9/32"	7.142	2-11/16"	1-1/2"	30.07	28.77	27.46
	89600	.2812	9/32"	7.142	3-1/2"	2-1/8"	30.39	29.07	27.75
77605		.2900	L	7.366	2-3/4"	1-9/16"	31.18	29.82	28.47
	89605	.2900	L	7.366	3-1/2"	2-1/8"	31.48	30.11	28.74
77610		.2950	M	7.493	2-3/4"	1-9/16"	33.37	31.92	30.47
	89610	.2950	M	7.493	3-3/4"	2-3/8"	33.70	32.23	30.77
77615		.2953		7.500	70	40	33.37	31.92	30.47
	89615	.2953		7.500	95	60	33.70	32.23	30.77
77620		.2969	19/64"	7.541	2-3/4"	1-9/16"	33.53	32.08	30.62
	89620	.2969	19/64"	7.541	3-3/4"	2-3/8"	33.70	32.23	30.77
77625		.3020	N	7.671	2-15/16"	1-5/8"	35.34	33.80	32.27
	89625	.3020	N	7.671	3-3/4"	2-3/8"	35.70	34.14	32.59
77630		.3125	5/16"	7.938	2-15/16"	1-5/8"	35.47	33.92	32.38
	89630	.3125	5/16"	7.938	3-3/4"	2-3/8"	35.83	34.28	32.72
77635		.3150		8.000	75	43	38.03	36.38	34.72
	89635	.3150		8.000	95	60	38.44	36.77	35.10
77640		.3160	O	8.026	2-15/16"	1-11/16"	38.03	36.38	34.72
	89640	.3160	O	8.026	3-3/4"	2-3/8"	38.44	36.77	35.10
77645		.3230	P	8.204	2-15/16"	1-11/16"	38.38	36.71	35.04
	89645	.3230	P	8.204	3-3/4"	2-3/8"	38.44	36.77	35.10
77650		.3281	21/64"	8.334	2-15/16"	1-11/16"	38.62	36.94	35.26
	89650	.3281	21/64"	8.334	4"	2-1/2"	39.01	37.31	35.62
77655		.3320	Q	8.433	3"	1-11/16"	39.50	37.79	36.07
	89655	.3320	Q	8.433	4"	2-1/2"	39.93	38.19	36.46
77660		.3346		8.500	76	43	39.87	38.14	36.40
	89660	.3346		8.500	101	63	40.27	38.52	36.77
77665		.3390	R	8.611	3"	1-11/16"	41.15	39.36	37.57
	89665	.3390	R	8.611	4"	2-1/2"	41.57	39.77	37.96
77670		.3438	11/32"	8.733	3"	1-11/16"	42.83	40.96	39.10
	89670	.3438	11/32"	8.733	4"	2-1/2"	43.25	41.37	39.49
77675		.3480	S	8.839	3-1/16"	1-3/4"	43.40	41.51	39.63
	89675	.3480	S	8.839	4"	2-1/2"	43.40	41.51	39.63
77680		.3543		9.000	78	44	43.65	41.76	39.86
	89680	.3543		9.000	101	63	43.65	41.76	39.86

3xD (1520) EDP#	5xD (1205) EDP#	d^+ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77685		.3580	T	9.093	3-1/16"	1-3/4"	43.84	41.93	40.03
	89685	.3580	T	9.093	4-1/4"	2-3/4"	44.05	42.13	40.22
77690		.3594	23/64"	9.129	3-1/16"	1-3/4"	44.14	42.22	40.30
	89690	.3594	23/64"	9.129	4-1/4"	2-3/4"	44.36	42.43	40.50
77695		.3680	U	9.347	3-1/8"	1-13/16"	48.33	46.23	44.13
	89695	.3680	U	9.347	4-1/4"	2-3/4"	50.34	48.15	45.96
77700		.3740		9.500	79	46	48.78	46.66	44.54
	89700	.3740		9.500	107	70	50.81	48.60	46.39
77705		.3750	3/8"	9.525	3-1/8"	1-13/16"	49.16	47.03	44.89
	89705	.3750	3/8"	9.525	4-1/4"	2-3/4"	51.21	48.98	46.76
77710		.3770	V	9.576	3-1/4"	1-7/8"	50.09	47.92	45.74
	89710	.3770	V	9.576	4-1/4"	2-3/4"	52.19	49.92	47.65
77715		.3860	W	9.804	3-1/4"	1-7/8"	51.15	48.93	46.70
	89715	.3860	W	9.804	4-1/2"	2-7/8"	53.29	50.97	48.66
77720		.3906	25/64"	9.921	3-1/4"	1-7/8"	51.92	49.67	47.41
	89720	.3906	25/64"	9.921	4-1/2"	2-7/8"	54.08	51.73	49.38
77725		.3937		10.000	84	49	53.79	51.45	49.11
	89725	.3937		10.000	114	73	56.03	53.59	51.16
77730		.3970	X	10.084	3-5/16"	1-15/16"	55.35	52.94	50.54
	89730	.3970	X	10.084	4-1/2"	2-7/8"	57.68	55.18	52.67
	89735	.4040	Y	10.262	4-1/2"	2-7/8"	58.14	55.62	53.09
77740		.4062	13/32"	10.317	3-5/16"	1-15/16"	57.82	55.31	52.79
	89740	.4062	13/32"	10.317	4-1/2"	2-7/8"	60.24	57.62	55.00
77745		.4130	Z	10.490	3-3/8"	2"	58.47	55.92	53.38
	89745	.4130	Z	10.490	4-1/2"	2-7/8"	60.88	58.23	55.59
77750		.4134		10.500	86	51	58.47	55.92	53.38
	89750	.4134		10.500	114	73	60.88	58.23	55.59
77755		.4219	27/64"	10.716	3-3/8"	2"	59.09	56.52	53.95
	89755	.4219	27/64"	10.716	4-1/2"	2-7/8"	61.56	58.88	56.21
77760		.4331		11.000	87	52	64.16	61.37	58.58
	89760	.4331		11.000	114	73	66.85	63.94	61.04
77765		.4375	7/16"	11.113	3-7/16"	2-1/16"	64.16	61.37	58.58
	89765	.4375	7/16"	11.113	4-1/2"	2-7/8"	66.85	63.94	61.04
77770		.4528		11.500	91	54	69.61	66.58	63.56
	89770	.4528		11.500	120	76	72.52	69.37	66.21
77775		.4531	29/64"	11.509	3-9/16"	2-1/8"	69.61	66.58	63.56
	89775	.4531	29/64"	11.509	4-3/4"	3"	72.52	69.37	66.21
77780		.4688	15/32"	11.908	3-5/8"	2-1/8"	73.62	70.42	67.22
	89780	.4688	15/32"	11.908	4-3/4"	3"	76.71	73.37	70.04
77785		.4724		12.000	94	56	73.90	70.69	67.47
	89785	.4724		12.000	120	76	76.95	73.60	70.26
77790		.4844	31/64"	12.304	3-11/16"	2-3/16"	74.45	71.21	67.98
	89790	.4844	31/64"	12.304	4-3/4"	3"	76.95	73.60	70.26
77795		.4921		12.500	95	56	75.31	72.04	68.76
	89795	.4921		12.500	120	76	79.01	75.57	72.14
77800		.5000	1/2"	12.700	3-3/4"	2-1/4"	75.85	72.56	69.26
	89800	.5000	1/2"	12.700	4-3/4"	3"	79.01	75.57	72.14
NEW 77805		.5118		13.000	107	60	95.29	91.15	87.00
	89805	.5118		13.000	127	83	99.26	94.94	90.63
NEW 77810		.5156	33/64"	13.096	4-1/4"	2-3/8"	97.84	93.59	89.33
	89810	.5156	33/64"	13.096	5"	3-1/4"	101.92	97.49	93.06
NEW 77815		.5312	17/32"	13.492	4-1/4"	2-3/8"	100.40	96.03	91.67
	89815	.5312	17/32"	13.492	5"	3-1/4"	104.58	100.03	95.49
NEW 77820		.5315		13.500	107	60	102.95	98.47	94.00
	89820	.5315		13.500	127	83	107.25	102.59	97.92

continued →

Series 1520, 1205 (continued)

.5469" - .6299"
(13.891mm - 16.000mm)

	3xD (1520) EDP#	5xD (1205) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
			Decimal	Metric						
NEW	77825		.5469	35/64"	13.891	4-1/4"	105.51	100.93	96.34	91.75
		89825	.5469	35/64"	13.891	5"	109.92	105.14	100.36	95.58
NEW	77830		.5512		14.000	107	108.07	103.37	98.67	93.97
		89830	.5512		14.000	127	112.59	107.69	102.80	97.90
NEW	77835		.5625	9/16"	14.287	4-1/2"	117.85	112.73	107.60	102.48
		89835	.5625	9/16"	14.287	5"	122.77	117.44	112.10	106.76
NEW	77840		.5709		14.500	115	120.31	115.08	109.85	104.62
		89840	.5709		14.500	127	125.33	119.88	114.43	108.98
NEW	77845		.5781	37/64"	14.683	4-1/2"	122.77	117.44	112.10	106.76
		89845	.5781	37/64"	14.683	5-1/4"	127.89	122.33	116.77	111.21
NEW	77850		.5906		15.000	115	125.28	119.83	114.39	108.94
		89850	.5906		15.000	133	130.49	124.82	119.14	113.47
NEW	77855		.5938	19/32"	15.082	4-1/2"	125.99	120.52	115.04	109.56
		89855	.5938	19/32"	15.082	5-1/4"	131.25	125.54	119.84	114.13
NEW	77860		.6094	39/64"	15.478	4-1/2"	126.70	121.19	115.68	110.17
		89860	.6094	39/64"	15.478	5-1/4"	131.96	126.23	120.49	114.75
NEW	77865		.6102		15.500	115	127.41	121.87	116.33	110.79
		89865	.6102		15.500	133	132.72	126.95	121.18	115.41
NEW	77870		.6250	5/8"	15.875	4-1/2"	128.11	122.54	116.97	111.40
		89870	.6250	5/8"	15.875	5-1/4"	133.45	127.64	121.84	116.04
NEW	77875		.6299		16.000	115	131.54	125.82	120.10	114.38
		89875	.6299		16.000	133	137.02	131.07	125.11	119.15

*Drill and Reamer Manufacturing*

TOLERANCES

d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)
l_2	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)


**NEW
ITEMS**
Series 1520H, 1205H

 .0625" - .1015"
(1.588mm - 2.578mm)

General purpose for all material groups

Hardlube Coating

Solid submicron grain carbide drill

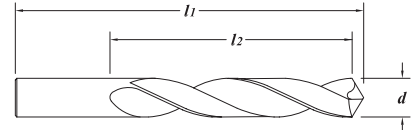
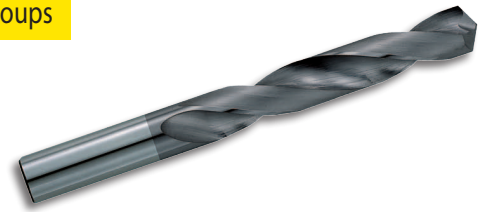
Excellent heat resistance and lubricity

No spotting required in most applications

4-flute self-centering point

Live tooling recommended on lathe processes

Uncoated - page 67



3xD (1520H) EDP#	5xD (1205H) EDP#	d †		l_1	l_2	1-11	12-24	25-49	50-100
		Decimal	Diameter Metric	Overall Length	Flute Length				
77166		.0625	1/16"	1.588	1-3/4"	5/8"	9.51	9.10	8.27
	89166	.0625	1/16"	1.588	1-3/4"	3/4"	9.51	9.10	8.27
77171		.0635	#52	1.613	1-3/4"	11/16"	9.63	9.21	8.37
	89171	.0635	#52	1.613	1-3/4"	3/4"	9.63	9.21	8.37
77176		.0670	#51	1.702	1-3/4"	11/16"	9.75	9.33	8.48
	89176	.0670	#51	1.702	1-3/4"	3/4"	9.75	9.33	8.48
77181		.0700	#50	1.778	1-3/4"	11/16"	9.90	9.47	8.61
	89181	.0700	#50	1.778	1-3/4"	7/8"	9.90	9.47	8.61
77186		.0730	#49	1.854	1-3/4"	11/16"	10.12	9.68	8.80
	89186	.0730	#49	1.854	1-3/4"	7/8"	10.13	9.69	8.81
77191		.0760	#48	1.930	1-3/4"	11/16"	10.38	9.93	9.03
	89191	.0760	#48	1.930	1-3/4"	7/8"	10.38	9.93	9.03
77196		.0781	5/64"	1.984	1-3/4"	11/16"	10.70	10.23	9.30
	89196	.0781	5/64"	1.984	1-3/4"	7/8"	10.72	10.25	9.32
77201		.0785	#47	1.994	1-3/4"	3/4"	10.98	10.51	9.55
	89201	.0785	#47	1.994	1-3/4"	7/8"	11.01	10.53	9.57
77206		.0787		2.000	44	19	11.13	10.65	9.68
	89206	.0787		2.000	44	22	11.13	10.65	9.68
77211		.0810	#46	2.057	1-3/4"	3/4"	11.27	10.78	9.80
	89211	.0810	#46	2.057	1-3/4"	7/8"	11.28	10.79	9.81
77216		.0820	#45	2.083	1-3/4"	3/4"	11.55	11.04	10.04
	89216	.0820	#45	2.083	1-3/4"	7/8"	11.56	11.06	10.05
77221		.0860	#44	2.184	1-3/4"	3/4"	11.86	11.34	10.31
	89221	.0860	#44	2.184	2"	1"	11.87	11.35	10.32
77226		.0890	#43	2.261	1-3/4"	3/4"	12.12	11.59	10.54
	89226	.0890	#43	2.261	2"	1"	12.13	11.61	10.55
77231		.0935	#42	2.375	1-3/4"	3/4"	12.28	11.75	10.68
	89231	.0935	#42	2.375	2"	1"	12.28	11.75	10.68
77236		.0938	3/32"	2.383	1-3/4"	3/4"	12.51	11.97	10.88
	89236	.0938	3/32"	2.383	2"	1"	12.51	11.97	10.88
77241		.0960	#41	2.438	1-13/16"	13/16"	12.59	12.05	10.95
	89241	.0960	#41	2.438	2"	1"	12.62	12.07	10.97
77246		.0980	#40	2.489	1-13/16"	13/16"	12.75	12.20	11.09
	89246	.0980	#40	2.489	2"	1"	12.78	12.22	11.11
77251		.0984		2.500	46	21	12.80	12.24	11.13
	89251	.0984		2.500	57	32	12.80	12.24	11.13
77256		.0995	#39	2.527	1-13/16"	13/16"	12.86	12.30	11.18
	89256	.0995	#39	2.527	2-1/4"	1-1/4"	12.86	12.30	11.18
77261		.1015	#38	2.578	1-13/16"	13/16"	12.97	12.41	11.28
	89261	.1015	#38	2.578	2-1/4"	1-1/4"	13.02	12.45	11.32

Series 1520H, 1205H (continued)

.1040" - .1719"
(2.642mm - 4.366mm)

3xD (1520H) EDP#	5xD (1205H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77266		.1040	#37	2.642	1-13/16"	13/16"	13.03	12.46	11.90
	89266	.1040	#37	2.642	2-1/4"	1-1/4"	13.12	12.55	11.98
77271		.1065	#36	2.705	1-13/16"	13/16"	13.11	12.54	11.97
	89271	.1065	#36	2.705	2-1/4"	1-1/4"	13.27	12.69	12.12
77276		.1094	7/64"	2.779	1-13/16"	13/16"	13.17	12.60	12.02
	89276	.1094	7/64"	2.779	2-1/4"	1-1/4"	13.48	12.89	12.31
77281		.1100	#35	2.794	1-7/8"	7/8"	13.25	12.67	12.10
	89281	.1100	#35	2.794	2-1/4"	1-1/4"	13.58	12.99	12.40
77286		.1110	#34	2.819	1-7/8"	7/8"	13.39	12.80	12.22
	89286	.1110	#34	2.819	2-1/4"	1-1/4"	13.73	13.13	12.54
77291		.1130	#33	2.870	1-7/8"	7/8"	13.47	12.88	12.30
	89291	.1130	#33	2.870	2-1/4"	1-1/4"	13.95	13.34	12.74
77296		.1160	#32	2.946	1-7/8"	7/8"	13.55	12.96	12.37
	89296	.1160	#32	2.946	2-1/4"	1-1/4"	14.05	13.44	12.83
77301		.1181		3.000	48	22	13.66	13.07	12.47
	89301	.1181		3.000	57	32	14.17	13.55	12.94
77306		.1200	#31	3.048	1-7/8"	7/8"	13.75	13.16	12.56
	89306	.1200	#31	3.048	2-1/4"	1-1/4"	14.28	13.66	13.04
77311		.1250	1/8"	3.175	1-7/8"	7/8"	13.88	13.28	12.67
	89311	.1250	1/8"	3.175	2-1/4"	1-1/4"	14.40	13.77	13.15
77316		.1285	#30	3.264	1-15/16"	15/16"	14.19	13.57	12.96
	89316	.1285	#30	3.264	2-1/4"	1-1/4"	14.73	14.09	13.45
77321		.1360	#29	3.454	1-15/16"	15/16"	14.52	13.89	13.26
	89321	.1360	#29	3.454	2-1/2"	1-3/8"	15.12	14.47	13.81
77326		.1378		3.500	49	24	14.93	14.28	13.63
	89326	.1378		3.500	63	35	15.54	14.86	14.19
77331		.1405	#28	3.569	1-15/16"	15/16"	15.08	14.42	13.77
	89331	.1405	#28	3.569	2-1/2"	1-3/8"	15.71	15.03	14.34
77336		.1406	9/64"	3.571	1-15/16"	15/16"	15.23	14.56	13.90
	89336	.1406	9/64"	3.571	2-1/2"	1-3/8"	15.85	15.16	14.47
77341		.1440	#27	3.658	2-1/16"	1"	16.38	15.66	14.95
	89341	.1440	#27	3.658	2-1/2"	1-3/8"	16.39	15.68	14.96
77346		.1470	#26	3.734	2-1/16"	1"	16.54	15.82	15.10
	89346	.1470	#26	3.734	2-1/2"	1-3/8"	16.54	15.82	15.10
77351		.1495	#25	3.797	2-1/16"	1"	16.69	15.96	15.24
	89351	.1495	#25	3.797	2-1/2"	1-3/8"	16.69	15.96	15.24
77356		.1520	#24	3.861	2-1/16"	1"	16.74	16.02	15.29
	89356	.1520	#24	3.861	2-1/2"	1-3/8"	16.77	16.04	15.31
77361		.1540	#23	3.912	2-1/16"	1"	16.84	16.10	15.37
	89361	.1540	#23	3.912	2-1/2"	1-3/8"	16.85	16.12	15.38
77366		.1562	5/32"	3.967	2-1/16"	1"	16.93	16.19	15.46
	89366	.1562	5/32"	3.967	2-1/2"	1-3/8"	16.93	16.19	15.46
77371		.1570	#22	3.988	2-1/8"	1-1/16"	17.87	17.09	16.32
	89371	.1570	#22	3.988	2-1/2"	1-3/8"	17.87	17.09	16.32
77376		.1575		4.000	54	27	18.06	17.27	16.49
	89376	.1575		4.000	63	35	18.07	17.28	16.50
77381		.1590	#21	4.039	2-1/8"	1-1/16"	18.27	17.48	16.68
	89381	.1590	#21	4.039	2-1/2"	1-3/8"	18.27	17.48	16.68
77386		.1610	#20	4.089	2-1/8"	1-1/16"	18.38	17.58	16.78
	89386	.1610	#20	4.089	2-1/2"	1-3/8"	18.38	17.58	16.78
77391		.1660	#19	4.216	2-1/8"	1-1/16"	19.04	18.22	17.39
	89391	.1660	#19	4.216	2-3/4"	1-5/8"	19.06	18.23	17.40
77396		.1695	#18	4.305	2-1/8"	1-1/16"	19.24	18.40	17.57
	89396	.1695	#18	4.305	2-3/4"	1-5/8"	19.24	18.40	17.57
77401		.1719	11/64"	4.366	2-1/8"	1-1/16"	19.57	18.72	17.87
	89401	.1719	11/64"	4.366	2-3/4"	1-5/8"	19.57	18.72	17.87

3xD (1520H) EDP#	5xD (1205H) EDP#	d^+ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77406		.1730	#17	4.394	2-3/16"	1-1/8"	19.84	18.98	17.25
	89406	.1730	#17	4.394	2-3/4"	1-5/8"	19.86	19.00	17.27
77411		.1770	#16	4.496	2-3/16"	1-1/8"	20.03	19.16	17.42
	89411	.1770	#16	4.496	2-3/4"	1-5/8"	20.03	19.16	17.42
77416		.1772		4.500	56	29	20.13	19.25	17.50
	89416	.1772		4.500	70	41	20.14	19.26	17.51
77421		.1800	#15	4.572	2-3/16"	1-1/8"	20.23	19.35	17.59
	89421	.1800	#15	4.572	2-3/4"	1-5/8"	20.23	19.35	17.59
77426		.1820	#14	4.623	2-3/16"	1-1/8"	20.62	19.72	17.93
	89426	.1820	#14	4.623	2-3/4"	1-5/8"	20.62	19.72	17.93
77431		.1850	#13	4.700	2-3/16"	1-1/8"	20.76	19.86	18.05
	89431	.1850	#13	4.700	2-3/4"	1-5/8"	20.77	19.87	18.06
77436		.1875	3/16"	4.763	2-3/16"	1-1/8"	20.83	19.92	18.11
	89436	.1875	3/16"	4.763	2-3/4"	1-5/8"	20.86	19.95	18.14
77441		.1890	#12	4.801	2-1/4"	1-3/16"	22.99	21.99	19.99
	89441	.1890	#12	4.801	2-3/4"	1-5/8"	22.99	21.99	19.99
77446		.1910	#11	4.851	2-1/4"	1-3/16"	23.20	22.19	20.17
	89446	.1910	#11	4.851	2-3/4"	1-5/8"	23.20	22.19	20.17
77451		.1935	#10	4.915	2-1/4"	1-3/16"	24.10	23.06	20.96
	89451	.1935	#10	4.915	2-3/4"	1-5/8"	24.10	23.06	20.96
77456		.1960	#9	4.978	2-1/4"	1-3/16"	24.63	23.56	21.42
	89456	.1960	#9	4.978	3"	1-3/4"	24.63	23.56	21.42
77461		.1969		5.000	57	30	24.76	23.68	21.53
	89461	.1969		5.000	76	44	24.76	23.68	21.53
77466		.1990	#8	5.055	2-1/4"	1-3/16"	24.87	23.79	21.63
	89466	.1990	#8	5.055	3"	1-3/4"	24.86	23.78	21.62
77471		.2010	#7	5.105	2-1/4"	1-3/16"	25.53	24.42	22.20
	89471	.2010	#7	5.105	3"	1-3/4"	25.52	24.41	22.19
77476		.2031	13/64"	5.159	2-1/4"	1-3/16"	25.68	24.56	22.33
	89476	.2031	13/64"	5.159	3"	1-3/4"	25.68	24.56	22.33
77481		.2040	#6	5.182	2-3/8"	1-1/4"	26.14	25.00	22.73
	89481	.2040	#6	5.182	3"	1-3/4"	26.14	25.00	22.73
77486		.2055	#5	5.220	2-3/8"	1-1/4"	26.60	25.44	23.13
	89486	.2055	#5	5.220	3"	1-3/4"	26.60	25.44	23.13
77491		.2090	#4	5.309	2-3/8"	1-1/4"	27.03	25.85	23.50
	89491	.2090	#4	5.309	3"	1-3/4"	27.03	25.85	23.50
77496		.2130	#3	5.410	2-3/8"	1-1/4"	27.42	26.22	23.84
	89496	.2130	#3	5.410	3"	1-3/4"	27.42	26.22	23.84
77501		.2165		5.500	60	32	27.61	26.41	24.01
	89501	.2165		5.500	76	44	27.59	26.39	23.99
77506		.2188	7/32"	5.558	2-3/8"	1-1/4"	27.77	26.57	24.15
	89506	.2188	7/32"	5.558	3"	1-3/4"	27.76	26.55	24.14
77511		.2210	#2	5.613	2-7/16"	1-5/16"	28.37	27.14	24.67
	89511	.2210	#2	5.613	3"	1-3/4"	28.34	27.10	24.64
77516		.2280	#1	5.791	2-7/16"	1-5/16"	28.52	27.28	24.80
	89516	.2280	#1	5.791	3"	1-3/4"	28.51	27.27	24.79
77521		.2340	A	5.944	2-7/16"	1-5/16"	28.58	27.34	24.85
	89521	.2340	A	5.944	3-1/4"	2"	28.91	27.65	25.14
77526		.2344	15/64"	5.954	2-7/16"	1-5/16"	28.62	27.38	24.89
	89526	.2344	15/64"	5.954	3-1/4"	2"	28.99	27.73	25.21
77531		.2362		6.000	64	35	28.69	27.45	24.95
	89531	.2362		6.000	82	50	29.08	27.82	25.29
77536		.2380	B	6.045	2-1/2"	1-3/8"	28.80	27.54	25.04
	89536	.2380	B	6.045	3-1/4"	2"	29.18	27.91	25.37
77541		.2420	C	6.147	2-1/2"	1-3/8"	28.98	27.72	25.20
	89541	.2420	C	6.147	3-1/4"	2"	29.36	28.08	25.53

continued →

Series 1520H, 1205H (continued)

.2460" - .3543"
(6.248mm - 9.000mm)

3xD (1520H) EDP#	5xD (1205H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77546		.2460	D	6.248	2-1/2"	1-3/8"	29.18	27.91	26.64
	89546	.2460	D	6.248	3-1/4"	2"	29.57	28.28	27.00
77551		.2500	1/4" / E	6.350	2-1/2"	1-3/8"	29.35	28.07	26.80
	89551	.2500	1/4" / E	6.350	3-1/4"	2"	29.72	28.42	27.13
77556		.2559		6.500	67	37	32.76	31.34	29.91
	89556	.2559		6.500	82	50	33.47	32.01	30.56
77561		.2570	F	6.528	2-5/8"	1-7/16"	33.32	31.87	30.42
	89561	.2570	F	6.528	3-1/4"	2"	34.05	32.57	31.09
77566		.2610	G	6.629	2-5/8"	1-7/16"	33.86	32.38	30.91
	89566	.2610	G	6.629	3-1/2"	2-1/8"	34.57	33.07	31.56
77571		.2656	17/64"	6.746	2-5/8"	1-7/16"	34.43	32.93	31.44
	89571	.2656	17/64"	6.746	3-1/2"	2-1/8"	35.14	33.62	32.09
77576		.2660	H	6.756	2-11/16"	1-1/2"	35.22	33.69	32.16
	89576	.2660	H	6.756	3-1/2"	2-1/8"	35.94	34.38	32.81
77581		.2720	I	6.909	2-11/16"	1-1/2"	35.56	34.01	32.47
	89581	.2720	I	6.909	3-1/2"	2-1/8"	36.27	34.69	33.12
77586		.2756		7.000	68	38	35.80	34.24	32.69
	89586	.2756		7.000	88	54	36.50	34.91	33.33
77591		.2770	J	7.036	2-11/16"	1-1/2"	36.08	34.51	32.94
	89591	.2770	J	7.036	3-1/2"	2-1/8"	36.77	35.17	33.57
77596		.2810	K	7.137	2-11/16"	1-1/2"	36.32	34.74	33.16
	89596	.2810	K	7.137	3-1/2"	2-1/8"	37.05	35.44	33.83
77601		.2812	9/32"	7.142	2-11/16"	1-1/2"	36.48	34.89	33.31
	89601	.2812	9/32"	7.142	3-1/2"	2-1/8"	37.19	35.57	33.96
77606		.2900	L	7.366	2-3/4"	1-9/16"	37.58	35.95	34.31
	89606	.2900	L	7.366	3-1/2"	2-1/8"	38.33	36.66	35.00
77611		.2950	M	7.493	2-3/4"	1-9/16"	39.76	38.03	36.30
	89611	.2950	M	7.493	3-3/4"	2-3/8"	40.53	38.76	37.00
77616		.2953		7.500	70	40	39.76	38.03	36.30
	89616	.2953		7.500	95	60	40.53	38.76	37.00
77621		.2969	19/64"	7.541	2-3/4"	1-9/16"	39.95	38.21	36.48
	89621	.2969	19/64"	7.541	3-3/4"	2-3/8"	40.53	38.76	37.00
77626		.3020	N	7.671	2-15/16"	1-5/8"	41.76	39.94	38.13
	89626	.3020	N	7.671	3-3/4"	2-3/8"	42.53	40.68	38.83
77631		.3125	5/16"	7.938	2-15/16"	1-5/8"	41.89	40.07	38.25
	89631	.3125	5/16"	7.938	3-3/4"	2-3/8"	42.69	40.83	38.98
77636		.3150		8.000	75	43	44.46	42.53	40.59
	89636	.3150		8.000	95	60	45.26	43.30	41.33
77641		.3160	O	8.026	2-15/16"	1-11/16"	44.46	42.53	40.59
	89641	.3160	O	8.026	3-3/4"	2-3/8"	45.26	43.30	41.33
77646		.3230	P	8.204	2-15/16"	1-11/16"	44.78	42.83	40.89
	89646	.3230	P	8.204	3-3/4"	2-3/8"	45.26	43.30	41.33
77651		.3281	21/64"	8.334	2-15/16"	1-11/16"	45.03	43.08	41.12
	89651	.3281	21/64"	8.334	4"	2-1/2"	45.84	43.85	41.85
77656		.3320	Q	8.433	3"	1-11/16"	45.93	43.93	41.94
	89656	.3320	Q	8.433	4"	2-1/2"	46.76	44.73	42.69
77661		.3346		8.500	76	43	46.29	44.28	42.26
	89661	.3346		8.500	101	63	47.10	45.06	43.01
77666		.3390	R	8.611	3"	1-11/16"	47.55	45.49	43.42
	89666	.3390	R	8.611	4"	2-1/2"	48.39	46.29	44.18
77671		.3438	11/32"	8.733	3"	1-11/16"	49.23	47.09	44.95
	89671	.3438	11/32"	8.733	4"	2-1/2"	50.07	47.89	45.72
77676		.3480	S	8.839	3-1/16"	1-3/4"	52.07	49.81	47.54
	89676	.3480	S	8.839	4"	2-1/2"	52.06	49.80	47.53
77681		.3543		9.000	78	44	52.34	50.06	47.79
	89681	.3543		9.000	101	63	52.35	50.07	47.80

3xD (1520H) EDP#	5xD (1205H) EDP#	d † Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
77686		.3580	T	9.093	3-1/16"	1-3/4"	52.51	50.23	45.66
	89686	.3580	T	9.093	4-1/4"	2-3/4"	54.43	52.06	47.33
77691		.3594	23/64"	9.129	3-1/16"	1-3/4"	52.83	50.53	45.94
	89691	.3594	23/64"	9.129	4-1/4"	2-3/4"	54.76	52.38	47.62
77696		.3680	U	9.347	3-1/8"	1-13/16"	57.02	54.54	49.58
	89696	.3680	U	9.347	4-1/4"	2-3/4"	60.75	58.11	52.83
77701		.3740		9.500	79	46	57.47	54.97	49.97
	89701	.3740		9.500	107	70	61.20	58.54	53.22
77706		.3750	3/8"	9.525	3-1/8"	1-13/16"	57.83	55.32	50.29
	89706	.3750	3/8"	9.525	4-1/4"	2-3/4"	61.61	58.93	53.57
77711		.3770	V	9.576	3-1/4"	1-7/8"	60.06	57.45	52.23
	89711	.3770	V	9.576	4-1/4"	2-3/4"	63.11	60.37	54.88
77716		.3860	W	9.804	3-1/4"	1-7/8"	61.11	58.45	53.14
	89716	.3860	W	9.804	4-1/2"	2-7/8"	64.24	61.45	55.86
77721		.3906	25/64"	9.921	3-1/4"	1-7/8"	61.87	59.18	53.80
	89721	.3906	25/64"	9.921	4-1/2"	2-7/8"	65.01	62.18	56.53
77726		.3937		10.000	84	49	63.74	60.97	55.43
	89726	.3937		10.000	114	73	66.98	64.06	58.24
77731		.3970	X	10.084	3-5/16"	1-15/16"	65.30	62.46	56.78
	89731	.3970	X	10.084	4-1/2"	2-7/8"	68.60	65.62	59.65
77736		.4040	Y	10.262	3-5/16"	1-15/16"	65.76	62.90	57.18
	89736	.4040	Y	10.262	4-1/2"	2-7/8"	69.07	66.07	60.06
77741		.4062	13/32"	10.317	3-5/16"	1-15/16"	67.79	64.85	58.95
	89741	.4062	13/32"	10.317	4-1/2"	2-7/8"	71.17	68.08	61.89
77746		.4130	Z	10.490	3-3/8"	2"	68.39	65.42	59.47
	89746	.4130	Z	10.490	4-1/2"	2-7/8"	71.83	68.71	62.46
77751		.4134		10.500	86	51	68.39	65.42	59.47
	89751	.4134		10.500	114	73	71.83	68.71	62.46
77756		.4219	27/64"	10.716	3-3/8"	2"	69.05	66.04	60.04
	89756	.4219	27/64"	10.716	4-1/2"	2-7/8"	72.50	69.34	63.04
77761		.4331		11.000	87	52	74.12	70.90	64.45
	89761	.4331		11.000	114	73	77.77	74.39	67.63
77766		.4375	7/16"	11.113	3-7/16"	2-1/16"	74.12	70.90	64.45
	89766	.4375	7/16"	11.113	4-1/2"	2-7/8"	77.77	74.39	67.63
77771		.4528		11.500	91	54	79.56	76.10	69.18
	89771	.4528		11.500	120	76	83.44	79.82	72.56
77776		.4531	29/64"	11.509	3-9/16"	2-1/8"	79.56	76.10	69.18
	89776	.4531	29/64"	11.509	4-3/4"	3"	83.44	79.82	72.56
77781		.4688	15/32"	11.908	3-5/8"	2-1/8"	83.59	79.96	72.69
	89781	.4688	15/32"	11.908	4-3/4"	3"	87.63	83.82	76.20
77786		.4724		12.000	94	56	83.84	80.19	72.90
	89786	.4724		12.000	120	76	87.89	84.07	76.43
77791		.4844	31/64"	12.304	3-11/16"	2-3/16"	84.41	80.74	73.40
	89791	.4844	31/64"	12.304	4-3/4"	3"	87.89	84.07	76.43
77796		.4921		12.500	95	56	85.24	81.53	74.12
	89796	.4921		12.500	120	76	89.94	86.03	78.21
77801		.5000	1/2"	12.700	3-3/4"	2-1/4"	85.79	82.06	74.60
	89801	.5000	1/2"	12.700	4-3/4"	3"	89.94	86.03	78.21
77806		.5118		13.000	107	60	109.17	104.42	94.93
	89806	.5118		13.000	127	83	113.19	108.27	98.43
77811		.5156	33/64"	13.096	4-1/4"	2-3/8"	111.73	106.88	97.16
	89811	.5156	33/64"	13.096	5"	3-1/4"	115.84	110.80	100.73
77816		.5312	17/32"	13.492	4-1/4"	2-3/8"	114.28	109.31	99.37
	89816	.5312	17/32"	13.492	5"	3-1/4"	118.51	113.36	103.05
NEW 77821		.5315		13.500	107	60	116.84	111.76	101.60
	89821	.5315		13.500	127	83	121.16	115.90	105.36

continued →

Series 1520H, 1205H (continued)

.5469" - .6299"
(13.891mm - 16.000mm)

	3xD (1520H) EDP#	5xD (1205H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
			Decimal	Metric						
NEW	77826		.5469	35/64"	13.891	4-1/4"	119.39	114.20	109.01	103.82
		89826	.5469	35/64"	13.891	5"	123.82	118.44	113.05	107.67
NEW	77831		.5512		14.000	107	121.96	116.66	111.35	106.05
		89831	.5512		14.000	127	126.51	121.01	115.51	110.01
NEW	77836		.5625	9/16"	14.287	4-1/2"	131.74	126.02	120.29	114.56
		89836	.5625	9/16"	14.287	5"	136.69	130.75	124.80	118.86
NEW	77841		.5709		14.500	115	134.21	128.37	122.54	116.70
		89841	.5709		14.500	127	139.24	133.19	127.13	121.08
NEW	77846		.5781	37/64"	14.683	4-1/2"	136.65	130.71	124.77	118.83
		89846	.5781	37/64"	14.683	5-1/4"	141.82	135.65	129.49	123.32
NEW	77851		.5906		15.000	115	139.16	133.11	127.06	121.01
		89851	.5906		15.000	133	144.41	138.13	131.85	125.57
NEW	77856		.5938	19/32"	15.082	4-1/2"	139.89	133.80	127.72	121.64
		89856	.5938	19/32"	15.082	5-1/4"	145.19	138.88	132.56	126.25
NEW	77861		.6094	39/64"	15.478	4-1/2"	140.58	134.46	128.35	122.24
		89861	.6094	39/64"	15.478	5-1/4"	145.90	139.56	133.21	126.87
NEW	77866		.6102		15.500	115	141.30	135.16	129.01	122.87
		89866	.6102		15.500	133	146.65	140.27	133.90	127.52
NEW	77871		.6250	5/8"	15.875	4-1/2"	142.00	135.83	129.65	123.48
		89871	.6250	5/8"	15.875	5-1/4"	147.40	140.99	134.58	128.17
NEW	77876		.6299		16.000	115	145.42	139.10	132.77	126.45
		89876	.6299		16.000	133	150.95	144.39	137.82	131.26



TOLERANCES

d	+.0000" - .0005" (+.0000 - .0127mm)	
l₁	≤ 1/8"	+.125" - .062" (+3.175 - 1.588mm)
	> 1/8"	+.125" - .125" (+3.175 - 3.175mm)
l₂	≤ 1/8"	+.125" - .062" (+3.175 - 1.588mm)
	> 1/8"	+.125" - .125" (+3.175 - 3.175mm)


Series 1120H, 1100H

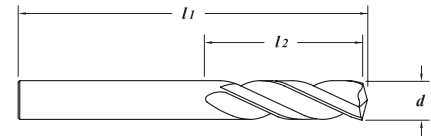
 .1094" - .1575"
(2.779mm - 4.000mm)

Recommended for cast iron, tungsten, and materials with high silicon content

Hardlube Coating

- Solid submicron grain carbide drill
- Self-centering drill point
- Near reamer finishes
- Can be used as a core drill
- Excellent heat resistance and lubricity
- Stub length reduces deflection and vibration
- Tighter tolerance holes
- Improved roundness and straightness
- Live tooling recommended on lathe processes

Series 1100 Uncoated - page 88



3xD (1120H) EDP#	5xD (1100H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100	
		Decimal	Metric							
78276		.1094	7/64"	2.779	1-13/16"	13/16"	15.38	14.71	14.04	13.37
	90276	.1094	7/64"	2.779	2-1/4"	1-1/4"	15.88	15.19	14.50	13.81
78281		.1100	#35	2.794	1-7/8"	7/8"	15.51	14.84	14.16	13.49
	90281	.1100	#35	2.794	2-1/4"	1-1/4"	16.05	15.36	14.66	13.96
78286		.1110	#34	2.819	1-7/8"	7/8"	15.67	14.99	14.31	13.63
78291		.1130	#33	2.870	1-7/8"	7/8"	15.90	15.21	14.52	13.83
	90291	.1130	#33	2.870	2-1/4"	1-1/4"	16.47	15.75	15.04	14.32
78296		.1160	#32	2.946	1-7/8"	7/8"	16.11	15.41	14.71	14.01
	90296	.1160	#32	2.946	2-1/4"	1-1/4"	16.63	15.91	15.18	14.46
78301		.1181		3.000	48	22	16.24	15.53	14.83	14.12
	90301	.1181		3.000	57	32	16.77	16.04	15.31	14.58
78306		.1200	#31	3.048	1-7/8"	7/8"	16.35	15.64	14.93	14.22
	90306	.1200	#31	3.048	2-1/4"	1-1/4"	16.87	16.14	15.40	14.67
78311		.1250	1/8"	3.175	1-7/8"	7/8"	16.54	15.82	15.10	14.38
	90311	.1250	1/8"	3.175	2-1/4"	1-1/4"	17.04	16.30	15.56	14.82
78316		.1285	#30	3.264	1-15/16"	15/16"	16.91	16.17	15.44	14.70
	90316	.1285	#30	3.264	2-1/4"	1-1/4"	17.41	16.65	15.90	15.14
78321		.1360	#29	3.454	1-15/16"	15/16"	17.30	16.54	15.79	15.04
	90321	.1360	#29	3.454	2-1/2"	1-3/8"	17.92	17.14	16.36	15.58
78326		.1378		3.500	49	24	17.80	17.03	16.25	15.48
	90326	.1378		3.500	63	35	18.41	17.61	16.81	16.01
78331		.1405	#28	3.569	1-15/16"	15/16"	17.99	17.20	16.42	15.64
	90331	.1405	#28	3.569	2-1/2"	1-3/8"	18.61	17.80	16.99	16.18
78336		.1406	9/64"	3.571	1-15/16"	15/16"	18.17	17.38	16.59	15.80
	90336	.1406	9/64"	3.571	2-1/2"	1-3/8"	18.78	17.96	17.15	16.33
78341		.1440	#27	3.658	2-1/16"	1"	19.44	18.59	17.75	16.90
	90341	.1440	#27	3.658	2-1/2"	1-3/8"	19.45	18.60	17.76	16.91
78346		.1470	#26	3.734	2-1/16"	1"	19.65	18.80	17.94	17.09
	90346	.1470	#26	3.734	2-1/2"	1-3/8"	19.67	18.81	17.96	17.10
78351		.1495	#25	3.797	2-1/16"	1"	19.83	18.96	18.10	17.24
	90351	.1495	#25	3.797	2-1/2"	1-3/8"	19.84	18.98	18.11	17.25
78356		.1520	#24	3.861	2-1/16"	1"	19.86	19.00	18.13	17.27
	90356	.1520	#24	3.861	2-1/2"	1-3/8"	19.86	19.00	18.13	17.27
78361		.1540	#23	3.912	2-1/16"	1"	20.02	19.15	18.28	17.41
	90361	.1540	#23	3.912	2-1/2"	1-3/8"	20.03	19.16	18.29	17.42
78366		.1562	5/32"	3.967	2-1/16"	1"	20.11	19.24	18.36	17.49
	90366	.1562	5/32"	3.967	2-1/2"	1-3/8"	20.11	19.24	18.36	17.49
78371		.1570	#22	3.988	2-1/8"	1-1/16"	21.26	20.34	19.41	18.49
	90371	.1570	#22	3.988	2-1/2"	1-3/8"	21.26	20.34	19.41	18.49
78376		.1575		4.000	54	27	21.26	20.34	19.41	18.49
	90376	.1575		4.000	63	35	21.26	20.34	19.41	18.49

continued →

Series 1120H, 1100H (continued)

.1590" - .2362"
(4.039mm - 6.000mm)

3xD (1120H) EDP#	5xD (1100H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
78381		.1590	#21	4.039	2-1/8"	1-1/16"	21.69	20.75	19.80
	90381	.1590	#21	4.039	2-1/2"	1-3/8"	21.74	20.79	19.85
78386		.1610	#20	4.089	2-1/8"	1-1/16"	21.69	20.75	19.80
	90386	.1610	#20	4.089	2-1/2"	1-3/8"	21.74	20.79	19.85
78391		.1660	#19	4.216	2-1/8"	1-1/16"	21.85	20.90	19.95
	90391	.1660	#19	4.216	2-3/4"	1-5/8"	21.86	20.91	19.96
78396		.1695	#18	4.305	2-1/8"	1-1/16"	21.99	21.03	20.08
	90396	.1695	#18	4.305	2-3/4"	1-5/8"	22.00	21.04	20.09
78401		.1719	11/64"	4.366	2-1/8"	1-1/16"	22.11	21.15	20.19
	90401	.1719	11/64"	4.366	2-3/4"	1-5/8"	22.11	21.15	20.19
78406		.1730	#17	4.394	2-3/16"	1-1/8"	23.02	22.02	21.02
	90406	.1730	#17	4.394	2-3/4"	1-5/8"	23.02	22.02	21.02
78411		.1770	#16	4.496	2-3/16"	1-1/8"	23.26	22.25	21.24
	90411	.1770	#16	4.496	2-3/4"	1-5/8"	23.28	22.26	21.25
78416		.1772		4.500	56	29	23.36	22.34	21.33
	90416	.1772		4.500	70	41	23.37	22.35	21.34
78421		.1800	#15	4.572	2-3/16"	1-1/8"	23.45	22.43	21.41
	90421	.1800	#15	4.572	2-3/4"	1-5/8"	23.49	22.47	21.45
78426		.1820	#14	4.623	2-3/16"	1-1/8"	23.94	22.90	21.86
	90426	.1820	#14	4.623	2-3/4"	1-5/8"	23.95	22.91	21.87
78431		.1850	#13	4.700	2-3/16"	1-1/8"	24.06	23.01	21.97
	90431	.1850	#13	4.700	2-3/4"	1-5/8"	24.06	23.01	21.97
78436		.1875	3/16"	4.763	2-3/16"	1-1/8"	24.06	23.01	21.97
	90436	.1875	3/16"	4.763	2-3/4"	1-5/8"	24.06	23.01	21.97
78441		.1890	#12	4.801	2-1/4"	1-3/16"	25.77	24.65	23.53
	90441	.1890	#12	4.801	2-3/4"	1-5/8"	25.75	24.63	23.51
78446		.1910	#11	4.851	2-1/4"	1-3/16"	26.00	24.87	23.74
	90446	.1910	#11	4.851	2-3/4"	1-5/8"	25.98	24.85	23.72
78451		.1935	#10	4.915	2-1/4"	1-3/16"	27.05	25.87	24.70
	90451	.1935	#10	4.915	2-3/4"	1-5/8"	27.05	25.87	24.70
78456		.1960	#9	4.978	2-1/4"	1-3/16"	27.62	26.42	25.22
	90456	.1960	#9	4.978	3"	1-3/4"	27.62	26.42	25.22
78461		.1969		5.000	57	30	27.77	26.57	25.36
	90461	.1969		5.000	76	44	27.76	26.55	25.35
78466		.1990	#8	5.055	2-1/4"	1-3/16"	27.93	26.72	25.50
	90466	.1990	#8	5.055	3"	1-3/4"	27.92	26.71	25.49
78471		.2010	#7	5.105	2-1/4"	1-3/16"	28.67	27.42	26.18
	90471	.2010	#7	5.105	3"	1-3/4"	28.67	27.42	26.18
78476		.2031	13/64"	5.159	2-1/4"	1-3/16"	29.62	28.34	27.05
	90476	.2031	13/64"	5.159	3"	1-3/4"	29.61	28.33	27.04
	90481	.2040	#6	5.182	3"	1-3/4"	29.79	28.49	27.20
78486		.2055	#5	5.220	2-3/8"	1-1/4"	29.91	28.61	27.31
	90486	.2055	#5	5.220	3"	1-3/4"	29.90	28.60	27.30
78491		.2090	#4	5.309	2-3/8"	1-1/4"	30.36	29.04	27.72
	90491	.2090	#4	5.309	3"	1-3/4"	30.36	29.04	27.72
78496		.2130	#3	5.410	2-3/8"	1-1/4"	30.82	29.48	28.14
	90496	.2130	#3	5.410	3"	1-3/4"	30.82	29.48	28.14
78501		.2165		5.500	60	32	31.03	29.68	28.33
	90501	.2165		5.500	76	44	31.03	29.68	28.33
78506		.2188	7/32"	5.558	2-3/8"	1-1/4"	31.22	29.87	28.51
	90506	.2188	7/32"	5.558	3"	1-3/4"	31.22	29.87	28.51
78511		.2210	#2	5.613	2-7/16"	1-5/16"	31.92	30.54	29.15
	90511	.2210	#2	5.613	3"	1-3/4"	31.90	30.51	29.13
78516		.2280	#1	5.791	2-7/16"	1-5/16"	32.05	30.66	29.26
	90516	.2280	#1	5.791	3"	1-3/4"	32.05	30.66	29.26
78521		.2340	A	5.944	2-7/16"	1-5/16"	32.22	30.82	29.42
	90521	.2340	A	5.944	3-1/4"	2"	32.50	31.09	29.67
78526		.2344	15/64"	5.954	2-7/16"	1-5/16"	32.35	30.94	29.54
	90526	.2344	15/64"	5.954	3-1/4"	2"	32.60	31.19	29.77
78531		.2362		6.000	64	35	32.43	31.02	29.61
	90531	.2362		6.000	82	50	32.69	31.27	29.85

3xD (1120H) EDP#	5xD (1100H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
78536		.2380	B	6.045	2-1/2"	1-3/8"	32.56	31.14	29.73
	90536	.2380	B	6.045	3-1/4"	2"	32.82	31.39	29.97
78541		.2420	C	6.147	2-1/2"	1-3/8"	32.76	31.34	29.91
	90541	.2420	C	6.147	3-1/4"	2"	33.01	31.57	30.14
78546		.2460	D	6.248	2-1/2"	1-3/8"	32.95	31.52	30.08
	90546	.2460	D	6.248	3-1/4"	2"	33.24	31.79	30.35
78551		.2500	1/4" / E	6.350	2-1/2"	1-3/8"	33.15	31.71	30.27
	90551	.2500	1/4" / E	6.350	3-1/4"	2"	33.43	31.98	30.52
78556		.2559		6.500	67	37	36.71	35.11	33.52
	90556	.2559		6.500	82	50	37.28	35.66	34.04
78561		.2570	F	6.528	2-5/8"	1-7/16"	37.33	35.71	34.08
	90561	.2570	F	6.528	3-1/4"	2"	37.90	36.26	34.61
78566		.2610	G	6.629	2-5/8"	1-7/16"	37.80	36.16	34.51
	90566	.2610	G	6.629	3-1/2"	2-1/8"	39.53	37.81	36.09
78571		.2656	17/64"	6.746	2-5/8"	1-7/16"	38.41	36.74	35.07
	90571	.2656	17/64"	6.746	3-1/2"	2-1/8"	40.17	38.42	36.68
78576		.2660	H	6.756	2-11/16"	1-1/2"	39.36	37.65	35.94
	90576	.2660	H	6.756	3-1/2"	2-1/8"	41.14	39.35	37.56
78581		.2720	I	6.909	2-11/16"	1-1/2"	39.74	38.02	36.29
	90581	.2720	I	6.909	3-1/2"	2-1/8"	41.57	39.77	37.96
78586		.2756		7.000	68	38	39.97	38.24	36.50
	90586	.2756		7.000	88	54	41.80	39.99	38.17
78591		.2770	J	7.036	2-11/16"	1-1/2"	40.27	38.52	36.77
	90591	.2770	J	7.036	3-1/2"	2-1/8"	42.14	40.30	38.47
78596		.2810	K	7.137	2-11/16"	1-1/2"	40.61	38.84	37.08
	90596	.2810	K	7.137	3-1/2"	2-1/8"	42.45	40.60	38.76
78601		.2812	9/32"	7.142	2-11/16"	1-1/2"	41.79	39.97	38.16
	90601	.2812	9/32"	7.142	3-1/2"	2-1/8"	43.71	41.81	39.91
78606		.2900	L	7.366	2-3/4"	1-9/16"	43.11	41.24	39.36
	90606	.2900	L	7.366	3-1/2"	2-1/8"	45.09	43.13	41.17
78611		.2950	M	7.493	2-3/4"	1-9/16"	44.18	42.26	40.34
	90611	.2950	M	7.493	3-3/4"	2-3/8"	47.44	45.38	43.31
78616		.2953		7.500	70	40	44.18	42.26	40.34
	90616	.2953		7.500	95	60	47.44	45.38	43.31
78621		.2969	19/64"	7.541	2-3/4"	1-9/16"	44.18	42.26	40.34
	90621	.2969	19/64"	7.541	3-3/4"	2-3/8"	47.44	45.38	43.31
78626		.3020	N	7.671	2-15/16"	1-5/8"	45.68	43.69	41.71
	90626	.3020	N	7.671	3-3/4"	2-3/8"	47.75	45.67	43.60
78631		.3125	5/16"	7.938	2-15/16"	1-5/8"	45.84	43.85	41.85
	90631	.3125	5/16"	7.938	3-3/4"	2-3/8"	47.78	45.71	43.63
78636		.3150		8.000	75	43	48.70	46.59	44.47
	90636	.3150		8.000	95	60	50.77	48.57	46.36
78641		.3160	O	8.026	2-15/16"	1-11/16"	48.70	46.59	44.47
	90641	.3160	O	8.026	3-3/4"	2-3/8"	50.77	48.57	46.36
78646		.3230	P	8.204	2-15/16"	1-11/16"	48.70	46.59	44.47
	90646	.3230	P	8.204	3-3/4"	2-3/8"	50.77	48.57	46.36
78651		.3281	21/64"	8.334	2-15/16"	1-11/16"	50.54	48.35	46.15
	90651	.3281	21/64"	8.334	4"	2-1/2"	52.82	50.52	48.23
78656		.3320	Q	8.433	3"	1-11/16"	51.57	49.32	47.08
	90656	.3320	Q	8.433	4"	2-1/2"	53.90	51.56	49.21
78661		.3346		8.500	76	43	51.99	49.73	47.47
	90661	.3346		8.500	101	63	54.31	51.95	49.59
78666		.3390	R	8.611	3"	1-11/16"	53.41	51.08	48.76
	90666	.3390	R	8.611	4"	2-1/2"	55.81	53.38	50.96
78671		.3438	11/32"	8.733	3"	1-11/16"	55.34	52.93	50.53
	90671	.3438	11/32"	8.733	4"	2-1/2"	57.80	55.29	52.77
78676		.3480	S	8.839	3-1/16"	1-3/4"	62.63	59.91	57.18
	90676	.3480	S	8.839	4"	2-1/2"	61.35	58.69	56.02
78681		.3543		9.000	78	44	62.99	60.25	57.51
	90681	.3543		9.000	101	63	61.71	59.03	56.34

continued →

Series 1120H, 1100H (continued)

.3580" - .5000"
(9.093mm - 12.700mm)

3xD (1120H) EDP#	5xD (1100H) EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
		Decimal	Metric						
78686		.3580	T	9.093	3-1/16"	1-3/4"	63.14	60.39	57.65
78691		.3594	23/64"	9.129	3-1/16"	1-3/4"	63.57	60.81	58.04
	90691	.3594	23/64"	9.129	4-1/4"	2-3/4"	64.27	61.48	58.68
78696		.3680	U	9.347	3-1/8"	1-13/16"	67.22	64.30	61.37
	90696	.3680	U	9.347	4-1/4"	2-3/4"	67.94	64.99	62.03
78701		.3740		9.500	79	46	68.20	65.23	62.27
	90701	.3740		9.500	107	70	68.93	65.93	62.94
78706		.3750	3/8"	9.525	3-1/8"	1-13/16"	68.20	65.23	62.27
	90706	.3750	3/8"	9.525	4-1/4"	2-3/4"	68.93	65.93	62.94
78711		.3770	V	9.576	3-1/4"	1-7/8"	68.86	65.87	62.87
	90711	.3770	V	9.576	4-1/4"	2-3/4"	71.71	68.60	65.48
78716		.3860	W	9.804	3-1/4"	1-7/8"	72.73	69.56	66.40
	90716	.3860	W	9.804	4-1/2"	2-7/8"	75.64	72.35	69.06
78721		.3906	25/64"	9.921	3-1/4"	1-7/8"	73.62	70.42	67.22
	90721	.3906	25/64"	9.921	4-1/2"	2-7/8"	76.58	73.25	69.92
78726		.3937		10.000	84	49	75.92	72.62	69.32
	90726	.3937		10.000	114	73	78.95	75.52	72.08
78736		.4040	Y	10.262	3-5/16"	1-15/16"	78.42	75.01	71.60
	90736	.4040	Y	10.262	4-1/2"	2-7/8"	81.54	77.99	74.45
78741		.4062	13/32"	10.317	3-5/16"	1-15/16"	80.90	77.39	73.87
	90741	.4062	13/32"	10.317	4-1/2"	2-7/8"	84.09	80.43	76.78
78746		.4130	Z	10.490	3-3/8"	2"	81.63	78.08	74.53
	90746	.4130	Z	10.490	4-1/2"	2-7/8"	84.84	81.15	77.46
78751		.4134		10.500	86	51	81.63	78.08	74.53
	90751	.4134		10.500	114	73	84.84	81.15	77.46
78756		.4219	27/64"	10.716	3-3/8"	2"	82.47	78.88	75.30
	90756	.4219	27/64"	10.716	4-1/2"	2-7/8"	85.69	81.96	78.24
78761		.4331		11.000	87	52	87.87	84.05	80.23
	90761	.4331		11.000	114	73	92.08	88.08	84.07
78766		.4375	7/16"	11.113	3-7/16"	2-1/16"	87.87	84.05	80.23
	90766	.4375	7/16"	11.113	4-1/2"	2-7/8"	92.08	88.08	84.07
	90771	.4528		11.500	120	76	98.99	94.69	90.38
78776		.4531	29/64"	11.509	3-9/16"	2-1/8"	94.48	90.38	86.27
	90776	.4531	29/64"	11.509	4-3/4"	3"	98.99	94.69	90.38
78781		.4688	15/32"	11.908	3-5/8"	2-1/8"	99.38	95.06	90.74
	90781	.4688	15/32"	11.908	4-3/4"	3"	104.09	99.56	95.04
78786		.4724		12.000	94	56	99.66	95.33	90.99
	90786	.4724		12.000	120	76	104.37	99.84	95.30
78791		.4844	31/64"	12.304	3-11/16"	2-3/16"	99.96	95.61	91.27
	90791	.4844	31/64"	12.304	4-3/4"	3"	104.37	99.84	95.30
78796		.4921		12.500	95	56	101.50	97.09	92.67
	90796	.4921		12.500	120	76	106.87	102.22	97.58
78801		.5000	1/2"	12.700	3-3/4"	2-1/4"	102.03	97.59	93.16
	90801	.5000	1/2"	12.700	4-3/4"	3"	106.87	102.22	97.58

TOLERANCES

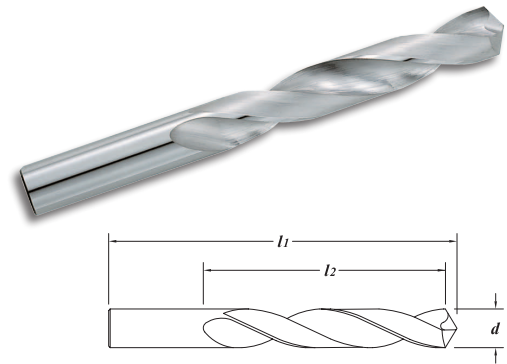
d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)
l_2	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)


Series 1200

.0625" - .1575"
(1.588mm - 4.000mm)

GENERAL PURPOSE
DRILLS

Solid submicron grain carbide drill
General purpose jobber style
Cam point ($\leq 1/8"$ diameter - 4-facet point)
Live tooling recommended on lathe processes
Hardlube Coating - page 86



EDP#	$d^{\dagger}$ Diameter			l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal		Metric						
56165	.0625	1/16"	1.588	1-3/4"	3/4"	7.42	7.10	6.77	6.45
56170	.0635	#52	1.613	1-3/4"	3/4"	7.52	7.19	6.87	6.54
56175	.0670	#51	1.702	1-3/4"	3/4"	7.64	7.30	6.97	6.64
56180	.0700	#50	1.778	1-3/4"	7/8"	7.82	7.48	7.14	6.80
56185	.0730	#49	1.854	1-3/4"	7/8"	8.03	7.68	7.33	6.98
56190	.0760	#48	1.930	1-3/4"	7/8"	8.29	7.93	7.57	7.21
56195	.0781	5/64"	1.984	1-3/4"	7/8"	8.60	8.23	7.85	7.48
56200	.0785	#47	1.994	1-3/4"	7/8"	8.89	8.50	8.12	7.73
56205	.0787		2.000	44	22	9.03	8.64	8.24	7.85
56210	.0810	#46	2.057	1-3/4"	7/8"	9.18	8.78	8.38	7.98
56215	.0820	#45	2.083	1-3/4"	7/8"	9.45	9.04	8.63	8.22
56220	.0860	#44	2.184	2"	1"	9.76	9.34	8.91	8.49
56225	.0890	#43	2.261	2"	1"	10.04	9.60	9.17	8.73
56230	.0935	#42	2.375	2"	1"	10.18	9.74	9.29	8.85
56235	.0938	3/32"	2.383	2"	1"	10.41	9.96	9.50	9.05
56240	.0960	#41	2.438	2"	1"	10.50	10.04	9.59	9.13
56245	.0980	#40	2.489	2"	1"	10.66	10.20	9.73	9.27
56250	.0984		2.500	57	32	10.72	10.25	9.79	9.32
56255	.0995	#39	2.527	2-1/4"	1-1/4"	10.76	10.30	9.83	9.36
56260	.1015	#38	2.578	2-1/4"	1-1/4"	10.89	10.42	9.94	9.47
56265	.1040	#37	2.642	2-1/4"	1-1/4"	11.04	10.56	10.08	9.60
56270	.1065	#36	2.705	2-1/4"	1-1/4"	11.18	10.69	10.21	9.72
56275	.1094	7/64"	2.779	2-1/4"	1-1/4"	11.36	10.87	10.37	9.88
56280	.1100	#35	2.794	2-1/4"	1-1/4"	11.49	10.99	10.49	9.99
56285	.1110	#34	2.819	2-1/4"	1-1/4"	11.63	11.12	10.62	10.11
56290	.1130	#33	2.870	2-1/4"	1-1/4"	11.85	11.33	10.82	10.30
56295	.1160	#32	2.946	2-1/4"	1-1/4"	11.97	11.45	10.93	10.41
56300	.1181		3.000	57	32	12.09	11.56	11.04	10.51
56305	.1200	#31	3.048	2-1/4"	1-1/4"	12.17	11.64	11.11	10.58
56310	.1250	1/8"	3.175	2-1/4"	1-1/4"	12.32	11.78	11.25	10.71
56315	.1285	#30	3.264	2-1/4"	1-1/4"	12.63	12.08	11.53	10.98
56320	.1360	#29	3.454	2-1/2"	1-3/8"	13.03	12.46	11.90	11.33
56325	.1378		3.500	63	35	13.46	12.87	12.29	11.70
56330	.1405	#28	3.569	2-1/2"	1-3/8"	13.58	12.99	12.40	11.81
56335	.1406	9/64"	3.571	2-1/2"	1-3/8"	13.74	13.15	12.55	11.95
56340	.1440	#27	3.658	2-1/2"	1-3/8"	14.28	13.66	13.04	12.42
56345	.1470	#26	3.734	2-1/2"	1-3/8"	14.42	13.79	13.17	12.54
56350	.1495	#25	3.797	2-1/2"	1-3/8"	14.62	13.98	13.35	12.71
56355	.1520	#24	3.861	2-1/2"	1-3/8"	14.64	14.00	13.37	12.73
56360	.1540	#23	3.912	2-1/2"	1-3/8"	14.74	14.10	13.46	12.82
56365	.1562	5/32"	3.967	2-1/2"	1-3/8"	14.85	14.20	13.56	12.91
56370	.1570	#22	3.988	2-1/2"	1-3/8"	15.78	15.09	14.41	13.72
56375	.1575		4.000	63	35	15.97	15.28	14.58	13.89

continued →

Series 1200 (continued)

.1590" - .3346"
(4.039mm - 8.500mm)

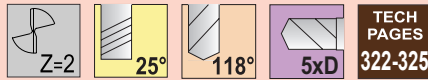
EDP#	$d^{\dagger}$ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
56380	.1590	#21	4.039	2-1/2"	1-3/8"	16.16	15.46	14.05
56385	.1610	#20	4.089	2-1/2"	1-3/8"	16.27	15.57	14.15
56390	.1660	#19	4.216	2-3/4"	1-5/8"	16.94	16.20	15.47
56395	.1695	#18	4.305	2-3/4"	1-5/8"	17.15	16.40	15.66
56400	.1719	11/64"	4.366	2-3/4"	1-5/8"	17.51	16.75	15.99
56405	.1730	#17	4.394	2-3/4"	1-5/8"	17.74	16.97	16.20
56410	.1770	#16	4.496	2-3/4"	1-5/8"	17.94	17.16	16.38
56415	.1772		4.500	70	41	18.03	17.25	16.46
56420	.1800	#15	4.572	2-3/4"	1-5/8"	18.11	17.33	16.54
56425	.1820	#14	4.623	2-3/4"	1-5/8"	18.53	17.72	16.92
56430	.1850	#13	4.700	2-3/4"	1-5/8"	18.66	17.85	17.04
56435	.1875	3/16"	4.763	2-3/4"	1-5/8"	18.76	17.94	17.13
56440	.1890	#12	4.801	2-3/4"	1-5/8"	19.37	18.52	17.68
56445	.1910	#11	4.851	2-3/4"	1-5/8"	19.57	18.72	17.87
56450	.1935	#10	4.915	2-3/4"	1-5/8"	20.52	19.62	18.73
56455	.1960	#9	4.978	3"	1-3/4"	21.02	20.11	19.19
56460	.1969		5.000	76	44	21.15	20.23	19.31
56465	.1990	#8	5.055	3"	1-3/4"	21.29	20.36	19.44
56470	.2010	#7	5.105	3"	1-3/4"	21.91	20.96	20.00
56475	.2031	13/64"	5.159	3"	1-3/4"	22.08	21.12	20.16
56480	.2040	#6	5.182	3"	1-3/4"	22.53	21.55	20.57
56485	.2055	#5	5.220	3"	1-3/4"	23.00	22.00	21.00
56490	.2090	#4	5.309	3"	1-3/4"	23.39	22.37	21.36
56495	.2130	#3	5.410	3"	1-3/4"	23.81	22.77	21.74
56500	.2165		5.500	76	44	23.99	22.95	21.90
56505	.2188	7/32"	5.558	3"	1-3/4"	24.16	23.11	22.06
56510	.2210	#2	5.613	3"	1-3/4"	24.76	23.68	22.61
56515	.2280	#1	5.791	3"	1-3/4"	24.90	23.82	22.73
56520	.2340	A	5.944	3-1/4"	2"	25.19	24.09	23.00
56525	.2344	15/64"	5.954	3-1/4"	2"	25.25	24.16	23.06
56530	.2362		6.000	82	50	25.36	24.26	23.15
56535	.2380	B	6.045	3-1/4"	2"	25.44	24.33	23.23
56540	.2420	C	6.147	3-1/4"	2"	25.63	24.52	23.40
56545	.2460	D	6.248	3-1/4"	2"	25.82	24.70	23.57
56550	.2500	1/4" / E	6.350	3-1/4"	2"	26.00	24.87	23.74
56555	.2559		6.500	82	50	26.63	25.48	24.32
56560	.2570	F	6.528	3-1/4"	2"	27.17	25.99	24.81
56565	.2610	G	6.629	3-1/2"	2-1/8"	27.74	26.53	25.33
56570	.2656	17/64"	6.746	3-1/2"	2-1/8"	28.30	27.07	25.84
56575	.2660	H	6.756	3-1/2"	2-1/8"	29.11	27.84	26.58
56580	.2720	I	6.909	3-1/2"	2-1/8"	29.43	28.15	26.87
56585	.2756		7.000	88	54	29.67	28.38	27.09
56590	.2770	J	7.036	3-1/2"	2-1/8"	29.93	28.63	27.33
56595	.2810	K	7.137	3-1/2"	2-1/8"	30.20	28.89	27.57
56600	.2812	9/32"	7.142	3-1/2"	2-1/8"	30.39	29.07	27.75
56605	.2900	L	7.366	3-1/2"	2-1/8"	31.48	30.11	28.74
56610	.2950	M	7.493	3-3/4"	2-3/8"	33.70	32.23	30.77
56615	.2953		7.500	95	60	33.70	32.23	30.77
56620	.2969	19/64"	7.541	3-3/4"	2-3/8"	33.70	32.23	30.77
56625	.3020	N	7.671	3-3/4"	2-3/8"	35.70	34.14	32.59
56630	.3125	5/16"	7.938	3-3/4"	2-3/8"	35.83	34.28	32.72
56635	.3150		8.000	95	60	38.44	36.77	35.10
56640	.3160	O	8.026	3-3/4"	2-3/8"	38.44	36.77	35.10
56645	.3230	P	8.204	3-3/4"	2-3/8"	38.44	36.77	35.10
56650	.3281	21/64"	8.334	4"	2-1/2"	39.01	37.31	35.62
56655	.3320	Q	8.433	4"	2-1/2"	39.93	38.19	36.46
56660	.3346		8.500	101	63	40.27	38.52	36.77

EDP#	d^+ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
56665	.3390	R	8.611	4"	2-1/2"	41.57	39.77	37.96
56670	.3438	11/32"	8.733	4"	2-1/2"	43.25	41.37	39.49
56675	.3480	S	8.839	4"	2-1/2"	43.40	41.51	39.63
56680	.3543		9.000	101	63	43.65	41.76	39.86
56685	.3580	T	9.093	4-1/4"	2-3/4"	44.05	42.13	40.22
56690	.3594	23/64"	9.129	4-1/4"	2-3/4"	44.36	42.43	40.50
56695	.3680	U	9.347	4-1/4"	2-3/4"	50.34	48.15	45.96
56700	.3740		9.500	107	70	50.81	48.60	46.39
56705	.3750	3/8"	9.525	4-1/4"	2-3/4"	51.21	48.98	46.76
56710	.3770	V	9.576	4-1/4"	2-3/4"	52.19	49.92	47.65
56715	.3860	W	9.804	4-1/2"	2-7/8"	53.29	50.97	48.66
56720	.3906	25/64"	9.921	4-1/2"	2-7/8"	54.08	51.73	49.38
56725	.3937		10.000	114	73	56.03	53.59	51.16
56730	.3970	X	10.084	4-1/2"	2-7/8"	57.68	55.18	52.67
56735	.4040	Y	10.262	4-1/2"	2-7/8"	58.14	55.62	53.09
56740	.4062	13/32"	10.317	4-1/2"	2-7/8"	60.24	57.62	55.00
56745	.4130	Z	10.490	4-1/2"	2-7/8"	60.88	58.23	55.59
56750	.4134		10.500	114	73	60.88	58.23	55.59
56755	.4219	27/64"	10.716	4-1/2"	2-7/8"	61.56	58.88	56.21
56760	.4331		11.000	114	73	66.85	63.94	61.04
56765	.4375	7/16"	11.113	4-1/2"	2-7/8"	66.85	63.94	61.04
56770	.4528		11.500	120	76	72.52	69.37	66.21
56775	.4531	29/64"	11.509	4-3/4"	3"	72.52	69.37	66.21
56780	.4688	15/32"	11.908	4-3/4"	3"	76.71	73.37	70.04
56785	.4724		12.000	120	76	76.95	73.60	70.26
56790	.4844	31/64"	12.304	4-3/4"	3"	76.95	73.60	70.26
56795	.4921		12.500	120	76	79.01	75.57	72.14
56800	.5000	1/2"	12.700	4-3/4"	3"	79.01	75.57	72.14

*Drill Manufacturing*

Series 1200H

.0625" - .1575"
(1.588mm - 4.000mm)



TOLERANCES

d	+.0000" - .0005" (+.0000 - .0127mm)	
l_1	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)
l_2	$\leq 1/8"$	+.125" - .062" (+3.175 - 1.588mm)
	$> 1/8"$	+.125" - .125" (+3.175 - 3.175mm)

Hardlube Coating

Solid submicron grain carbide drill

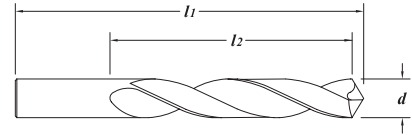
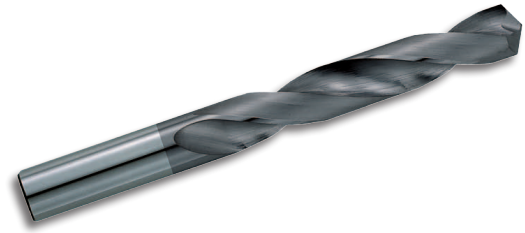
General purpose jobber style

Excellent heat resistance and lubricity

Cam point ($\leq 1/8"$ diameter is with 4-facet point)

Live tooling recommended on lathe processes

Uncoated - page 83



EDP#	d †		l_1	l_2	1-11	12-24	25-49	50-100
	Decimal	Diameter Metric						
56166	.0625	1/16"	1.588	1-3/4"	3/4"	9.51	9.10	8.68
56171	.0635	#52	1.613	1-3/4"	3/4"	9.63	9.21	8.79
56181	.0700	#50	1.778	1-3/4"	7/8"	9.90	9.47	9.04
56186	.0730	#49	1.854	1-3/4"	7/8"	10.13	9.69	9.25
56191	.0760	#48	1.930	1-3/4"	7/8"	10.38	9.93	9.48
56196	.0781	5/64"	1.984	1-3/4"	7/8"	10.72	10.25	9.79
56206	.0787		2.000	44	22	11.13	10.65	10.16
56216	.0820	#45	2.083	1-3/4"	7/8"	11.56	11.06	10.55
56221	.0860	#44	2.184	2"	1"	11.87	11.35	10.84
56226	.0890	#43	2.261	2"	1"	12.13	11.61	11.08
56231	.0935	#42	2.375	2"	1"	12.28	11.75	11.21
56236	.0938	3/32"	2.383	2"	1"	12.51	11.97	11.42
56241	.0960	#41	2.438	2"	1"	12.62	12.07	11.52
56246	.0980	#40	2.489	2"	1"	12.78	12.22	11.67
56251	.0984		2.500	57	32	12.80	12.24	11.69
56256	.0995	#39	2.527	2-1/4"	1-1/4"	12.86	12.30	11.74
56261	.1015	#38	2.578	2-1/4"	1-1/4"	13.02	12.45	11.89
56266	.1040	#37	2.642	2-1/4"	1-1/4"	13.12	12.55	11.98
56271	.1065	#36	2.705	2-1/4"	1-1/4"	13.27	12.69	12.12
56276	.1094	7/64"	2.779	2-1/4"	1-1/4"	13.48	12.89	12.31
56281	.1100	#35	2.794	2-1/4"	1-1/4"	13.58	12.99	12.40
56286	.1110	#34	2.819	2-1/4"	1-1/4"	13.73	13.13	12.54
56291	.1130	#33	2.870	2-1/4"	1-1/4"	13.95	13.34	12.74
56296	.1160	#32	2.946	2-1/4"	1-1/4"	14.05	13.44	12.83
56301	.1181		3.000	57	32	14.17	13.55	12.94
56306	.1200	#31	3.048	2-1/4"	1-1/4"	14.28	13.66	13.04
56311	.1250	1/8"	3.175	2-1/4"	1-1/4"	14.40	13.77	13.15
56316	.1285	#30	3.264	2-1/4"	1-1/4"	14.73	14.09	13.45
56321	.1360	#29	3.454	2-1/2"	1-3/8"	15.12	14.47	13.81
56331	.1405	#28	3.569	2-1/2"	1-3/8"	15.71	15.03	14.34
56336	.1406	9/64"	3.571	2-1/2"	1-3/8"	15.85	15.16	14.47
56341	.1440	#27	3.658	2-1/2"	1-3/8"	16.39	15.68	14.96
56346	.1470	#26	3.734	2-1/2"	1-3/8"	16.54	15.82	15.10
56351	.1495	#25	3.797	2-1/2"	1-3/8"	16.69	15.96	15.24
56356	.1520	#24	3.861	2-1/2"	1-3/8"	16.77	16.04	15.31
56361	.1540	#23	3.912	2-1/2"	1-3/8"	16.85	16.12	15.38
56366	.1562	5/32"	3.967	2-1/2"	1-3/8"	16.93	16.19	15.46
56371	.1570	#22	3.988	2-1/2"	1-3/8"	17.87	17.09	16.32

EDP#	$d^{\dagger}$		l_1	l_2	1-11	12-24	25-49	50-100
	Decimal	Diameter	Metric	Overall Length	Flute Length			
56381	.1590	#21	4.039	2-1/2"	1-3/8"	18.27	17.48	16.68
56386	.1610	#20	4.089	2-1/2"	1-3/8"	18.38	17.58	16.78
56391	.1660	#19	4.216	2-3/4"	1-5/8"	19.06	18.23	17.40
56396	.1695	#18	4.305	2-3/4"	1-5/8"	19.24	18.40	17.57
56401	.1719	11/64"	4.366	2-3/4"	1-5/8"	19.57	18.72	17.87
56411	.1770	#16	4.496	2-3/4"	1-5/8"	20.03	19.16	18.29
56421	.1800	#15	4.572	2-3/4"	1-5/8"	20.23	19.35	18.47
56426	.1820	#14	4.623	2-3/4"	1-5/8"	20.62	19.72	18.83
56436	.1875	3/16"	4.763	2-3/4"	1-5/8"	20.86	19.95	19.05
56441	.1890	#12	4.801	2-3/4"	1-5/8"	22.99	21.99	20.99
56446	.1910	#11	4.851	2-3/4"	1-5/8"	23.20	22.19	21.18
56451	.1935	#10	4.915	2-3/4"	1-5/8"	24.10	23.06	22.01
56471	.2010	#7	5.105	3"	1-3/4"	25.52	24.41	23.30
56481	.2040	#6	5.182	3"	1-3/4"	26.14	25.00	23.87
56486	.2055	#5	5.220	3"	1-3/4"	26.60	25.44	24.29
56491	.2090	#4	5.309	3"	1-3/4"	27.03	25.85	24.68
56496	.2130	#3	5.410	3"	1-3/4"	27.42	26.22	25.03
56506	.2188	7/32"	5.558	3"	1-3/4"	27.76	26.55	25.35
56516	.2280	#1	5.791	3"	1-3/4"	28.51	27.27	26.03
56526	.2344	15/64"	5.954	3-1/4"	2"	28.99	27.73	26.47
56541	.2420	C	6.147	3-1/4"	2"	29.36	28.08	26.81
56551	.2500	1/4" / E	6.350	3-1/4"	2"	29.72	28.42	27.13
56561	.2570	F	6.528	3-1/4"	2"	34.05	32.57	31.09
56566	.2610	G	6.629	3-1/2"	2-1/8"	34.57	33.07	31.56
56571	.2656	17/64"	6.746	3-1/2"	2-1/8"	35.14	33.62	32.09
56601	.2812	9/32"	7.142	3-1/2"	2-1/8"	37.19	35.57	33.96
56606	.2900	L	7.366	3-1/2"	2-1/8"	38.33	36.66	35.00
56626	.3020	N	7.671	3-3/4"	2-3/8"	42.53	40.68	38.83
56631	.3125	5/16"	7.938	3-3/4"	2-3/8"	42.69	40.83	38.98
56646	.3230	P	8.204	3-3/4"	2-3/8"	45.26	43.30	41.33
56651	.3281	21/64"	8.334	4"	2-1/2"	45.84	43.85	41.85
56671	.3438	11/32"	8.733	4"	2-1/2"	50.07	47.89	45.72
56696	.3680	U	9.347	4-1/4"	2-3/4"	60.75	58.11	55.47
56706	.3750	3/8"	9.525	4-1/4"	2-3/4"	61.61	58.93	56.25
56731	.3970	X	10.084	4-1/2"	2-7/8"	68.60	65.62	62.63
56741	.4062	13/32"	10.317	4-1/2"	2-7/8"	71.17	68.08	64.98
56756	.4219	27/64"	10.716	4-1/2"	2-7/8"	72.50	69.34	66.19
56766	.4375	7/16"	11.113	4-1/2"	2-7/8"	77.77	74.39	71.01
56801	.5000	1/2"	12.700	4-3/4"	3"	89.94	86.03	82.12

Series 1100

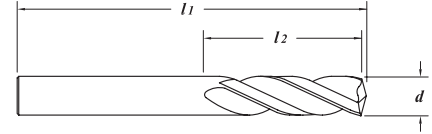
.1094" - .2040"
(2.779mm - 5.182mm)

TOLERANCES

d	+.0000" -.0005" (+.0000 -.0127mm)	
l_1	$\leq 1/8"$	+.125" -.062" (+3.175 -1.588mm)
	$> 1/8"$	+.125" -.125" (+3.175 -3.175mm)
l_2	$\leq 1/8"$	+.125" -.062" (+3.175 -1.588mm)
	$> 1/8"$	+.125" -.125" (+3.175 -3.175mm)

Recommended for cast iron, tungsten, and materials with high silicon content

Solid submicron grain carbide drill
Self-centering drill point
Near reamer finishes
Can be used as a core drill
Tighter tolerance holes
Improved roundness and straightness
Live tooling recommended on lathe processes
Hardlube Coating - page 79



EDP#	d †		l_1	l_2	1-11	12-24	25-49	50-100
	Decimal	Diameter Metric						
90275	.1094	7/64"	2.779	2-1/4"	1-1/4"	13.80	13.20	12.60
90280	.1100	#35	2.794	2-1/4"	1-1/4"	13.95	13.34	12.74
90285	.1110	#34	2.819	2-1/4"	1-1/4"	14.12	13.51	12.89
90290	.1130	#33	2.870	2-1/4"	1-1/4"	14.35	13.73	13.10
90295	.1160	#32	2.946	2-1/4"	1-1/4"	14.55	13.92	13.28
90300	.1181		3.000	57	32	14.65	14.01	13.38
90305	.1200	#31	3.048	2-1/4"	1-1/4"	14.75	14.11	13.47
90310	.1250	1/8"	3.175	2-1/4"	1-1/4"	14.96	14.31	13.66
90315	.1285	#30	3.264	2-1/4"	1-1/4"	15.32	14.65	13.99
90320	.1360	#29	3.454	2-1/2"	1-3/8"	15.80	15.11	14.43
90325	.1378		3.500	63	35	16.31	15.60	14.89
90330	.1405	#28	3.569	2-1/2"	1-3/8"	16.49	15.77	15.06
90335	.1406	9/64"	3.571	2-1/2"	1-3/8"	16.68	15.95	15.23
90340	.1440	#27	3.658	2-1/2"	1-3/8"	17.34	16.59	15.83
90345	.1470	#26	3.734	2-1/2"	1-3/8"	17.58	16.82	16.05
90350	.1495	#25	3.797	2-1/2"	1-3/8"	17.73	16.96	16.19
90355	.1520	#24	3.861	2-1/2"	1-3/8"	17.77	17.00	16.22
90365	.1562	5/32"	3.967	2-1/2"	1-3/8"	18.01	17.23	16.44
90375	.1575		4.000	63	35	19.15	18.32	17.48
90380	.1590	#21	4.039	2-1/2"	1-3/8"	19.61	18.76	17.90
90385	.1610	#20	4.089	2-1/2"	1-3/8"	19.61	18.76	17.90
90390	.1660	#19	4.216	2-3/4"	1-5/8"	19.77	18.91	18.05
90395	.1695	#18	4.305	2-3/4"	1-5/8"	19.90	19.03	18.17
90400	.1719	11/64"	4.366	2-3/4"	1-5/8"	20.02	19.15	18.28
90420	.1800	#15	4.572	2-3/4"	1-5/8"	21.37	20.44	19.51
90425	.1820	#14	4.623	2-3/4"	1-5/8"	21.85	20.90	19.95
90435	.1875	3/16"	4.763	2-3/4"	1-5/8"	21.99	21.03	20.08
90440	.1890	#12	4.801	2-3/4"	1-5/8"	22.14	21.18	20.21
90455	.1960	#9	4.978	3"	1-3/4"	24.01	22.97	21.92
90460	.1969		5.000	76	44	24.16	23.11	22.06
90470	.2010	#7	5.105	3"	1-3/4"	25.07	23.98	22.89
90475	.2031	13/64"	5.159	3"	1-3/4"	26.01	24.88	23.75
90480	.2040	#6	5.182	3"	1-3/4"	26.17	25.04	23.90

EDP#	$d^{\dagger}$			l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Diameter	Metric						
90485	.2055	#5	5.220	3"	1-3/4"	26.29	25.15	24.00	22.86
90500	.2165		5.500	76	44	27.42	26.22	25.03	23.84
90505	.2188	7/32"	5.558	3"	1-3/4"	27.63	26.43	25.23	24.03
90510	.2210	#2	5.613	3"	1-3/4"	28.31	27.08	25.85	24.62
90515	.2280	#1	5.791	3"	1-3/4"	28.45	27.21	25.98	24.74
90525	.2344	15/64"	5.954	3-1/4"	2"	28.89	27.63	26.38	25.12
90530	.2362		6.000	82	50	28.97	27.71	26.45	25.19
90550	.2500	1/4" / E	6.350	3-1/4"	2"	29.70	28.41	27.12	25.83
90555	.2559		6.500	82	50	30.44	29.12	27.79	26.47
90560	.2570	F	6.528	3-1/4"	2"	31.08	29.73	28.38	27.03
90565	.2610	G	6.629	3-1/2"	2-1/8"	32.69	31.27	29.85	28.43
90570	.2656	17/64"	6.746	3-1/2"	2-1/8"	33.35	31.90	30.45	29.00
90575	.2660	H	6.756	3-1/2"	2-1/8"	34.30	32.81	31.32	29.83
90580	.2720	I	6.909	3-1/2"	2-1/8"	34.72	33.21	31.70	30.19
90585	.2756		7.000	88	54	34.97	33.45	31.93	30.41
90600	.2812	9/32"	7.142	3-1/2"	2-1/8"	36.87	35.27	33.66	32.06
90605	.2900	L	7.366	3-1/2"	2-1/8"	38.24	36.58	34.91	33.25
90620	.2969	19/64"	7.541	3-3/4"	2-3/8"	40.61	38.84	37.08	35.31
90625	.3020	N	7.671	3-3/4"	2-3/8"	40.91	39.13	37.35	35.57
90630	.3125	5/16"	7.938	3-3/4"	2-3/8"	40.95	39.17	37.39	35.61
90635	.3150		8.000	95	60	43.94	42.03	40.12	38.21
90640	.3160	O	8.026	3-3/4"	2-3/8"	43.94	42.03	40.12	38.21
90650	.3281	21/64"	8.334	4"	2-1/2"	45.97	43.97	41.97	39.97
90655	.3320	Q	8.433	4"	2-1/2"	47.05	45.00	42.96	40.91
90660	.3346		8.500	101	63	47.47	45.41	43.34	41.28
90665	.3390	R	8.611	4"	2-1/2"	48.94	46.82	44.69	42.56
90670	.3438	11/32"	8.733	4"	2-1/2"	50.99	48.77	46.56	44.34
90680	.3543		9.000	101	63	53.03	50.72	48.42	46.11
90690	.3594	23/64"	9.129	4-1/4"	2-3/4"	53.90	51.56	49.21	46.87
90705	.3750	3/8"	9.525	4-1/4"	2-3/4"	58.54	55.99	53.45	50.90
90725	.3937		10.000	114	73	68.05	65.09	62.13	59.17
90745	.4130	Z	10.490	4-1/2"	2-7/8"	73.91	70.70	67.48	64.27
90755	.4219	27/64"	10.716	4-1/2"	2-7/8"	74.75	71.50	68.25	65.00
90760	.4331		11.000	114	73	81.16	77.63	74.10	70.57
90765	.4375	7/16"	11.113	4-1/2"	2-7/8"	81.16	77.63	74.10	70.57
90775	.4531	29/64"	11.509	4-3/4"	3"	88.08	84.25	80.42	76.59
90780	.4688	15/32"	11.908	4-3/4"	3"	93.17	89.12	85.07	81.02
90790	.4844	31/64"	12.304	4-3/4"	3"	93.46	89.40	85.33	81.27
90800	.5000	1/2"	12.700	4-3/4"	3"	95.92	91.75	87.58	83.41

Series 1800H

.1875" - .3125"
(4.763mm - 7.938mm)

TOLERANCES

d	$+0.000" - 0.005" (+0.000 - 0.127\text{mm})$
l_1	$+0.125" - 0.125" (+3.175 - 3.175\text{mm})$
l_2	$+0.125" - 0.125" (+3.175 - 3.175\text{mm})$

Recommended for deep holes in soft, non-ferrous materials (aluminum, brass, bronze)

Parabolic

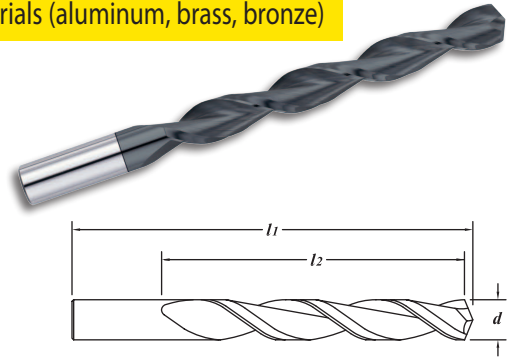
Hardlube Coating

Solid submicron grain carbide drill

Wide open flutes and high helix remove chips quickly

4-facet point

Live tooling recommended on lathe processes



EDP#	d † Diameter			l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal		Metric						
22436	.1875	3/16"	4.763	3-13/16"	2-5/16"	25.88	24.75	23.63	22.50
22441	.1890	#12	4.801	3-13/16"	2-5/16"	26.45	25.30	24.15	23.00
22456	.1960	#9	4.978	3-15/16"	2-7/16"	28.29	27.06	25.83	24.60
22461	.1969		5.000	100	62	28.89	27.63	26.38	25.12
22466	.1990	#8	5.055	3-15/16"	2-7/16"	29.37	28.09	26.82	25.54
22471	.2010	#7	5.105	3-15/16"	2-7/16"	29.90	28.60	27.30	26.00
22476	.2031	13/64"	5.159	3-15/16"	2-7/16"	29.22	27.95	26.68	25.41
22486	.2055	#5	5.220	4"	2-1/2"	31.40	30.03	28.67	27.30
22496	.2130	#3	5.410	4"	2-1/2"	32.37	30.97	29.56	28.15
22501	.2165		5.500	102	64	32.90	31.47	30.04	28.61
22506	.2188	7/32"	5.558	4"	2-1/2"	33.40	31.94	30.49	29.04
22511	.2210	#2	5.613	4"	2-1/2"	33.88	32.41	30.93	29.46
22516	.2280	#1	5.791	4-1/8"	2-5/8"	34.40	32.90	31.41	29.91
22531	.2362		6.000	105	67	35.96	34.40	32.83	31.27
22541	.2420	C	6.147	4-1/4"	2-3/4"	36.36	34.78	33.20	31.62
22546	.2460	D	6.248	4-1/4"	2-3/4"	36.51	34.93	33.34	31.75
22551	.2500	1/4" / E	6.350	4-1/4"	2-3/4"	36.71	35.11	33.52	31.92
22556	.2559		6.500	108	70	37.93	36.28	34.63	32.98
22561	.2570	F	6.528	4-3/8"	2-7/8"	39.53	37.81	36.09	34.37
22566	.2610	G	6.629	4-3/8"	2-7/8"	40.61	38.84	37.08	35.31
22571	.2656	17/64"	6.746	4-3/8"	2-7/8"	41.78	39.96	38.15	36.33
22576	.2660	H	6.756	4-3/8"	2-7/8"	43.15	41.27	39.40	37.52
22581	.2720	I	6.909	4-3/8"	2-7/8"	44.45	42.52	40.58	38.65
22586	.2756		7.000	111	73	45.78	43.79	41.80	39.81
22596	.2810	K	7.137	4-7/16"	2-15/16"	47.78	45.71	43.63	41.55
22606	.2900	L	7.366	4-7/16"	2-15/16"	49.90	47.73	45.56	43.39
22631	.3125	5/16"	7.938	4-11/16"	3-3/16"	52.16	49.90	47.63	45.36

EDP#	d^+ Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100
	Decimal	Metric						
22636	.3150	8.000	119	81	55.15	52.76	50.36	47.96
22646	.3230	P 8.204	4-11/16"	3-3/16"	57.68	55.18	52.67	50.16
22656	.3320	Q 8.433	4-15/16"	3-7/16"	60.24	57.62	55.00	52.38
22661	.3346	8.500	125	87	61.50	58.83	56.15	53.48
22666	.3390	R 8.611	4-15/16"	3-7/16"	63.43	60.68	57.92	55.16
22696	.3680	U 9.347	5"	3-1/2"	70.06	67.01	63.97	60.92
22706	.3750	3/8" 9.525	5-1/8"	3-5/8"	70.64	67.57	64.50	61.43
22721	.3906	25/64" 9.921	5-1/4"	3-3/4"	77.69	74.32	70.94	67.56
22726	.3937	10.000	133	95	80.02	76.54	73.06	69.58
22751	.4134	10.500	137	98	93.86	89.78	85.70	81.62
22761	.4331	11.000	138	100	101.17	96.77	92.37	87.97
22766	.4375	7/16" 11.113	5-7/16"	3-15/16"	101.17	96.77	92.37	87.97
22776	.4531	29/64" 11.509	5-9/16"	4-5/16"	102.60	98.14	93.68	89.22
22801	.5000	1/2" 12.700	6"	4-1/2"	107.92	103.22	98.53	93.84
22811	.5156	33/64" 13.096	6"	4-1/2"	136.40	130.47	124.54	118.61
22831	.5512	14.000	156	117	159.93	152.98	146.02	139.07

